

April 2008 Electrical Safety Occurrences

There were 11 electrical safety occurrences for April 2008:

- 1 resulted in an electrical shock
- 4 involved lockout/tagout
- 1 involved a cutting an energized cord and 1 involved penetration of an energized conductor
- 7 involved electrical workers and 4 involved a non-electrical workers
- 5 occurrences involved subcontractors

In compiling the monthly totals, the search initially looked for occurrence discovery dates in this month (excluding Significance Category R reports), and for the following ORPS "HQ keywords":

01K – Lockout/Tagout Electrical, 01M - Inadequate Job Planning (Electrical),

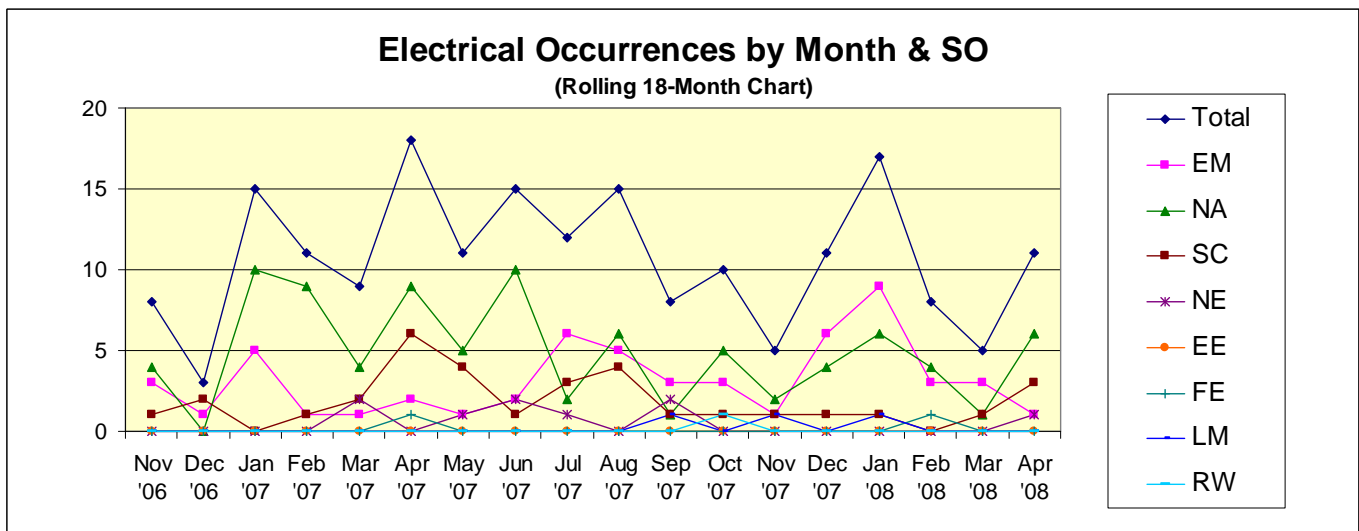
08A – Electrical Shock, 08J – Near Miss (Electrical), 12C – Electrical Safety

The initial search yielded 11 occurrences and a review of these determined that none needed to be culled out.

Below is the current summary of 2008 electrical safety occurrences:

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
Jan-08	17	7	0	0
Feb-08	8	3	0	0
Mar-08	5	1	0	0
Apr-08	11	1	0	0
2008 total	41 (avg. 10.25/month)	12	0	0
2007 total	140 (avg. 11.7/month)	25	2	0
2006 total	166 (avg. 13.8/month)	26	3	0
2005 total	165 (avg. 13.8/month)	39	5	0
2004 total	149 (avg. 12.4/month)	25	3	1

The average rate of electrical safety occurrences in 2008 is now 10.25 per month, which is less than the average rate of 11.7 per month experienced in 2007.



Electrical Safety Occurrences – April 2008

No	Report Number	Subject/Title	EW ⁽¹⁾	N-EW ⁽²⁾	SUB ⁽³⁾	SHOCK	BURN	ARCF ⁽⁴⁾	LOTO ⁽⁵⁾	EXCAV ⁽⁶⁾	CUT/D ⁽⁷⁾	VEH ⁽⁸⁾
1	EM--PPPO-UDS-PORTDUCON-2008-0002	Damaged Heat Trace Trips GFCI Breaker During Maintenance Activity		X	X							
2	NA--LASO-LANL-RADIOCHEM-2008-0001	Lockout/Tagout Violation Identified During Red Lock Removal		X	X				X			
3	NA--LSO-LLNL-LLNL-2008-0011	Electrical Wiring Contacted During Seismic Securing of Office Furniture in Building 111		X							X	
4	NA--LSO-LLNL-LLNL-2008-0012	Subcontractor Employee Failed to Follow Hazardous Energy Control Process During Building 365 Bio-Safety Cabinet Repair	X		X				X			
5	NA--SRSO-WSRC-TRIT-2008-0006	Lockout/Tagout Violation	X						X			
6	NA--SS-SNL-1000-2008-0008	Electrical Safety Interlocks Overridden in Bldg. 898	X		X							
7	NA--SS-SNL-2000-2008-0003	Discovery of Unexpected Energy Source in Bldg. 890	X								X	
8	NE-ID--BEA-SMC-2008-0002	Unexpected Energy Discovered at Disconnect During System Operability Testing	X		X							
9	SC--ASO-ANLE-ANLEAPS-2008-0002	Worker Encountered Unexpected 208V Source On Wire Thought To Be 24V	X									
10	SC--BHSO-BNL-BNL-2008-0004	Minor Electrical Shock		X		X						
11	SC--BSO-LBL-OPERATIONS-2008-0005	LOTO Deficiency While Adding Receptacles	X						X			
	TOTAL		7	4	5	1			4		2	

Key

(1)EW = electrical worker, (2)N-EW = non-electrical worker, (3)SUB = subcontractor, (4)ARCF = significant arc flash, (5)LOTO = lockout/tagout, (6)EXCAV = excavation, (7)CUT/D = cutting or drilling, (8)VEH = vehicle event

ORPS Operating Experience Report

ORPS contains 53707 OR(s) with 57025 occurrences(s) as of 5/8/2008 8:03:15 AM
 Query selected 11 OR(s) with 11 occurrences(s) as of 5/8/2008 12:54:05 PM

Download this report in Microsoft Word format. 

1)Report Number:	EM--PPPO-UDS-PORTDUCON-2008-0002 After 2003 Redesign														
Secretarial Office:	Environmental Management														
Lab/Site/Org:	Portsmouth Gaseous Diffusion Plant														
Facility Name:	Portsmouth Duf6 Conversion Plant														
Subject/Title:	Damaged Heat Trace Trips GFCI Breaker During Maintenance Activity														
Date/Time Discovered:	04/30/2008 08:15 (ETZ)														
Date/Time Categorized:	05/01/2008 10:15 (ETZ)														
Report Type:	Notification														
Report Dates:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Notification</td> <td style="width: 25%;">05/02/2008</td> <td style="width: 25%;">17:50 (ETZ)</td> </tr> <tr> <td>Initial Update</td> <td></td> <td></td> </tr> <tr> <td>Latest Update</td> <td></td> <td></td> </tr> <tr> <td>Final</td> <td></td> <td></td> </tr> </table>			Notification	05/02/2008	17:50 (ETZ)	Initial Update			Latest Update			Final		
Notification	05/02/2008	17:50 (ETZ)													
Initial Update															
Latest Update															
Final															
Significance Category:	3														
Reporting Criteria:	10(3) - A near miss, where no barrier or only one barrier prevented an event from having a reportable consequence. One of the four significance categories should be assigned to the near miss, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 3 occurrence)														
Cause Codes:															
ISM:	2) Analyze the Hazards														
Subcontractor Involved:	Yes Geiger Brothers, Inc.														
Occurrence Description:	<p>At approximately 0815 April 30, 2008, while preparing to clean a cooling tower, construction personnel observed a spark when removing the cap from a pipe with threaded ends for hose connection.</p> <p>Background: Previously, April 28, 2008, the construction mechanical contractor had installed a reducing fitting on the cooling tower pipe and flushed the make-up line. The reducing fitting was being replaced again April 30, 2008, to accommodate a water hose to clean the cooling tower.</p> <p>The pipe fitter was using a pipe wrench to change the fitting when a spark was observed. The pipe fitter did not receive an electrical shock. He</p>														

	<p>immediately dropped the wrench and stepped back from the pipe. The wrench did not have insulated grips. The pipe fitter was wearing jersey gloves.</p> <p>The pipe fitter was not aware that the heat trace was energized. The heat trace was not discussed during the pre-job briefing. The work was performed under two Activity Hazards Analyses: (1) General Plumbing and (2) General Work.</p> <p>The heat trace was not de-energized during the previous fitting exchange on April 28; however, the ambient temperature was higher than the set point. The ambient temperature on April 30th was lower than the set point when the spark was observed.</p> <p>The construction electrical subcontractor performed an inspection of the heat trace and discovered:</p> <ol style="list-style-type: none"> 1. The GFCI breaker for the heat trace had tripped at the panel. 2. Approximately 3/4 inch to 1 inch of the protective coating or insulation on the heat trace wiring was damaged at the point where the cap threads onto the pipe and wiring was exposed. <p>An Initial Event Report was distributed immediately following the event. A fact finding meeting was held May 1, 2008, including DOE, contractors involved in the event, UDS Shift Superintendent, UDS ES&H, and UDS Compliance. During this meeting it was determined that the event was ORPS reportable.</p>
Cause Description:	
Operating Conditions:	Normal
Activity Category:	Construction
Immediate Action(s):	<p>The pipe fitter stopped work and stepped away from the pipe.</p> <p>The pipe fitter contacted the mechanical contractor ES&H representative who was in close vicinity of the work.</p> <p>Electrical contractor posted area.</p> <p>Electrical contractor tagged out heat trace.</p> <p>Electrical contractor repaired heat trace.</p> <p>Alerts were distributed to operations personnel regarding heat trace.</p>
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is	No

Required:																									
Division or Project:	Uranium Disposition Services																								
Plant Area:	Grid Map Location:F2																								
System/Building/Equipment:	Cooling Water System																								
Facility Function:	Uranium Conversion/Processing and Handling																								
Corrective Action:																									
Lessons(s) Learned:																									
HQ Keywords:	01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other) 01O--Inadequate Conduct of Operations - Inadequate Maintenance 07D--Electrical Systems - Electrical Wiring 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical) 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency																								
HQ Summary:	While preparing to clean a cooling tower, a pipefitter observed a spark when he removed a cap from the threaded end of pipe for a hose connection. The pipefitter immediately dropped his wrench and stepped back from the pipe. The spark was caused by energized heat tracing on the piping. Although the wrench did not have insulated grips, the pipefitter was wearing jersey gloves. An electrical contractor tagged out and repaired the damaged heat tracing.																								
Similar OR Report Number:	1. None																								
Facility Manager:	<table border="1"> <tr> <td>Name</td> <td>MCCOY, JOHN C</td> </tr> <tr> <td>Phone</td> <td>(740) 947-4901</td> </tr> <tr> <td>Title</td> <td>PLANT MANAGER</td> </tr> </table>	Name	MCCOY, JOHN C	Phone	(740) 947-4901	Title	PLANT MANAGER																		
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Originator:	<table border="1"> <tr> <td>Name</td> <td>BLACKMON, JOSIE Y</td> </tr> <tr> <td>Phone</td> <td>(740) 947-4901</td> </tr> <tr> <td>Title</td> <td>SITE INTERFACE MANAGER</td> </tr> </table>	Name	BLACKMON, JOSIE Y	Phone	(740) 947-4901	Title	SITE INTERFACE MANAGER																		
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Authorized Classifier(AC):																									

2)Report Number:	NA--LASO-LANL-RADIOCHEM-2008-0001 After 2003 Redesign		
Secretarial Office:	National Nuclear Security Administration		
Lab/Site/Org:	Los Alamos National Laboratory		
Facility Name:	Radiochemistry Site		
Subject/Title:	Lockout/Tagout Violation Identified During Red Lock Removal		
Date/Time Discovered:	04/08/2008 13:40 (MTZ)		
Date/Time Categorized:	04/08/2008 13:45 (MTZ)		
Report Type:	Notification/Final		
Report Dates:	Notification	04/11/2008	15:59 (ETZ)
	Initial Update	04/11/2008	15:59 (ETZ)
	Latest Update	04/11/2008	15:59 (ETZ)
	Final	04/11/2008	15:59 (ETZ)
Significance Category:	4		
Reporting Criteria:	4B(5) - A facility operational event caused by deviating from a written procedure or using an inadequate procedure resulting in an adverse effect on safety, such as: an inadvertent facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes), facility or operations shutdown due to alarm response procedures, inadvertent process liquid transfer, or inadvertent release of hazardous material from its engineered containment.		
Cause Codes:			
ISM:	4) Perform Work Within Controls		
Subcontractor Involved:	Yes JCI-York and KSL Services		
Occurrence Description:	MANAGEMENT SYNOPSIS: On April 7, 2008, at 1400, at Technical Area 48 (TA48), Building RC-1, Room 21, while removing their red locks from Breaker No. 4, JCI-York subcontractor personnel found a third red lock that did not belong to them on their gang-lock. They immediately notified the TA48 facility coordinator who then notified the TA48 operations manager. The JCI-York personnel had placed two red locks on Breaker No. 4 to perform corrective maintenance on Chiller No. 3. KSL Services personnel had been tasked to replace the pump on Chiller PCW-11 under Work Ticket No. 309046-01. The work documentation required that Breaker No. 11 be locked out for Chiller PCW-11. Both of the breakers for the chillers were located in the same panel. Subsequent review found that the KSL worker placed his red lock on the wrong breaker. The TA48 operations manager identified the owner of the lock from the attached tag and notified the KSL Services area manager to have the lock removed. Because the lock owner was not at work to remove his red lock, Attachment E," Alternative Authorization for Removing Locks and Tags," was completed and the lock		

	<p>removed from Breaker 4. This event did not result in any personnel exposure to hazardous energy.</p> <p>Upon notification, the Science and Technology Operations (STO) Facility Operations Director categorized the event as sub-threshold reportable. On April 8, 2008, a critique was conducted. The critique identified weaknesses with the STO lockout/tagout program and work control. KSL personnel had made multiple field changes to their work package; some with the knowledge of the STO facility coordinator and some without. These changes included at least two changes to lockout points and other additional lockout points added, but were not covered in the work package. These lockout point changes did not have additional reviews or approvals because the KSL responsible line manager (RLM) believed the changes did not constitute a change in the hazard and the change was considered minor. The RLM believed that Laboratory Implementation Procedure (IMP) 300, "Integrated Work Management," and Maintenance Procedure AP-WORK-002, "Work Planning," allowed him to make field changes. The critique also identified weaknesses in the quality of the work packages generated for KSL and equipment labeling. As a result, the STO Facility Operations Director re-categorized the event as reportable.</p>
Cause Description:	
Operating Conditions:	Normal Operations
Activity Category:	Inspection/Monitoring
Immediate Action(s):	<ol style="list-style-type: none"> 1. After Attachment E was completed, the KSL area manager removed the unauthorized red lock from Breaker No. 4. 2. Facility maintenance work at TA48 has been suspended until more clear guidance could be developed and personnel trained on the guidance. Two standing orders were written: 1) Lockout/Tagout and 2) Procedure for Making Changes. Briefings were created and provided to all STO operations managers, facility coordinators/technicians, and KSL craft. The STO Engineering and ESH personnel have also asked to be trained, which will be scheduled the week of April 14, 2008. 3. All the STO operations managers performed extent of condition reviews in their facilities to identify similar problems with other lockout/tagout orders. Additionally, two assessment cards were provided to the operations managers to target on-going work to ensure expectations are being met. Each operations manager will assess lockout/tagout logs daily and assess specific lockout/tagout orders weekly. 4. Because the involved KSL worker was not at work on day of the critique, he will be interviewed when he returns.
FM Evaluation:	
DOE Facility Representative	

Input:							
DOE Program Manager Input:							
Further Evaluation is Required:	No						
Division or Project:	KSL Services						
Plant Area:	TA48-RC1-021						
System/Building/Equipment:	Chilled Water Pump, PCW 11						
Facility Function:	Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)						
Corrective Action:							
Lessons(s) Learned:							
HQ Keywords:	<p>01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control</p> <p>01F--Inadequate Conduct of Operations - Training Deficiency</p> <p>01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)</p> <p>01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)</p> <p>11G--Other - Subcontractor</p> <p>12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)</p> <p>14B--Quality Assurance - Training and Qualification Deficiency</p> <p>14D--Quality Assurance - Documents and Records Deficiency</p> <p>14E--Quality Assurance - Work Process Deficiency</p>						
HQ Summary:	<p>While removing their red locks from a breaker, subcontractor personnel found a third red lock that did not belong to them on their gang-lock. They immediately notified the facility coordinator who then notified the operations manager. The subcontractor personnel had placed two red locks on breaker #3 to perform corrective maintenance on a chiller. KSL Services personnel had been tasked to replace the pump on a different chiller, which required a lock to be placed on breaker #11. Both breakers for the chillers were located in the same panel. Subsequent review found that the KSL worker placed his red lock on the wrong breaker. A critique of this event revealed weaknesses in the lockout/tagout program which require further action.</p>						
Similar OR Report Number:							
Facility Manager:	<table border="1"> <tr> <td>Name</td> <td>Gail Johnson</td> </tr> <tr> <td>Phone</td> <td>(505) 667-4362</td> </tr> <tr> <td>Title</td> <td>STO Facility Operations Director</td> </tr> </table>	Name	Gail Johnson	Phone	(505) 667-4362	Title	STO Facility Operations Director
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Title	STO Facility Operations Director						
Originator:	<table border="1"> <tr> <td>Name</td> <td>YAZZIE, ALVA M</td> </tr> <tr> <td>Phone</td> <td>(505) 664-0666</td> </tr> </table>	Name	YAZZIE, ALVA M	Phone	(505) 664-0666		
Name	YAZZIE, ALVA M						
Phone	(505) 664-0666						

	Title	OCCURRENCE INVESTIGATOR		
HQ OC Notification:	Date	Time	Person Notified	Organization
	NA	NA	NA	NA
Other Notifications:	Date	Time	Person Notified	Organization
	04/09/2008	08:35 (MTZ)	Ed Christie	NNSA
Authorized Classifier(AC):	Mark Hunsinger		Date: 04/11/2008	

3)Report Number:	NA--LSO-LLNL-LLNL-2008-0011 After 2003 Redesign		
Secretarial Office:	National Nuclear Security Administration		
Lab/Site/Org:	Lawrence Livermore National Lab.		
Facility Name:	Lawrence Livermore Nat. Lab. (BOP)		
Subject/Title:	Electrical Wiring Contacted During Seismic Securing of Office Furniture in Building 111		
Date/Time Discovered:	04/09/2008 11:30 (PTZ)		
Date/Time Categorized:	04/09/2008 12:00 (PTZ)		
Report Type:	Update		
Report Dates:	Notification	04/11/2008	14:36 (ETZ)
	Initial Update	04/11/2008	14:40 (ETZ)
	Latest Update	04/11/2008	14:40 (ETZ)
	Final		
Significance Category:	3		
Reporting Criteria:	2C(2) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.		
Cause Codes:			
ISM:			
Subcontractor Involved:	No		
Occurrence Description:	On April 9, 2008, at approximately 1130 a.m., a carpenter performing seismic securing in Building 111, Rm 437A, contacted a previously unidentified electrical energy source.		
	The carpenter (an O&B, F&I worker) was in the process of seismically securing an eight-foot metal bookshelf to an office wall with 3-inch self-tapping metal screws. Three holes had been drilled with a cordless screw-		

	<p>driver (DeWalt Model #DC988). Upon making the fourth wall penetration, a laboratory employee from an adjacent office area asked the carpenter about a sudden power interruption that had just occurred within their office area.</p> <p>Upon subsequent investigation, it was found that the drilling operation affected a 208/120-Volt 3-pole circuit breaker that tripped after the contact was made by the screw. The event caused a power loss to several offices in the local office area.</p> <p>No electrical shock or injuries resulted from this event.</p>
Cause Description:	
Operating Conditions:	N/A
Activity Category:	Maintenance
Immediate Action(s):	<ol style="list-style-type: none"> 1. The carpenter immediately stopped work and notified responsible line managers within the F&I Directorate. 2. F&I electricians responded to appropriately lock and tag out the tripped breaker. 3. Line management (within the F&I) issued a safety pause for all wall penetrations within the Plant Engineering Department (Both Site 200 & 300). 4. Upon concurrence with F&I line management and the LLNL Electrical SME, emergency investigation efforts were conducted by responding electricians to properly safe the damaged conduct (i.e. to eliminate any further electrical hazards). 5. The event scene was properly barricaded, to prevent entry, until follow up work control process could be initiated for remaining repair work. And, power was safely restored to the previously affected office areas.
FM Evaluation:	Final Report is due by 5/24/2008.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	<p>Yes.</p> <p>Before Further Operation? No</p> <p>By Whom: Kevin Akey</p> <p>By When: 05/24/2008</p>
Division or Project:	O&B
Plant Area:	Site 200
System/Building/Equipment:	111
Facility Function:	Balance-of-Plant - Offices
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other)

07C--Electrical Systems - Power Outage
 07D--Electrical Systems - Electrical Wiring
 12C--EH Categories - Electrical Safety
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: A carpenter was seismically securing an 8-foot metal bookshelf to an office wall with 3-inch self-tapping metal screws, when a screw penetrated a previously unidentified 120-volt electrical circuit and tripped the breaker. The event was discovered when a laboratory employee from an adjacent office area asked the carpenter about a sudden power interruption that had just occurred within their office area. The event caused a power loss to several offices in the local office area. Work was stopped, and the area was secured until repairs were completed.

Similar OR Report Number:

Facility Manager:	Name	Harold Conner
	Phone	(925) 422-5786
	Title	F&I AD

Originator:	Name	Freeman, Jeffrey W
	Phone	(925) 424-6787
	Title	OCCURRENCE REPORTING

HQ OC Notification:	Date	Time	Person Notified	Organization
	NA	NA	NA	NA

Other Notifications:	Date	Time	Person Notified	Organization
	04/09/2008	11:35 (PTZ)	Beverly DeOcampo	ESH TL
	04/09/2008	11:45 (PTZ)	Becky Failor	LEDO
	04/09/2008	11:59 (PTZ)	Lois Marik	NNSA/LSO

Authorized Classifier(AC):

4)Report Number: [NA--LSO-LLNL-LLNL-2008-0012](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Lawrence Livermore National Lab.

Facility Name: Lawrence Livermore Nat. Lab. (BOP)

Subject/Title: Subcontractor Employee Failed to Follow Hazardous Energy Control Process During Building 365 Bio-Safety Cabinet Repair

Date/Time Discovered: 04/09/2008 15:30 (PTZ)

Date/Time Categorized: 04/09/2008 17:30 (PTZ)

Report Type: Update

Report Dates:	Notification	04/11/2008	15:19 (ETZ)
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Initial Update	04/11/2008	15:23 (ETZ)
Latest Update	04/11/2008	15:23 (ETZ)
Final		

Significance Category: 3

Reporting Criteria: 2C(2) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

Cause Codes:

ISM:

Subcontractor Involved: Yes
Technical Safety Services

Occurrence Description: On Wednesday April 9th, 2008 at approximately 1330, a subcontractor employee from Technical Safety Services (TSS) started to work on replacing a blower motor in a biosafety cabinet in building 365. The technician proceeded to unplug an electrical power (120Vac) cord beneath the cabinet, thinking it was the sole source of electrical energy to the unit. The technician believed that he turned the off/on switch to the motor located on the face of the cabinet to the off position and proceeded to install a replacement motor. The technician did not perform a zero energy check to ensure that the circuit was de-energized.

The electrical outlet (120Vac) providing power to this motor was actually located on the wall above the cabinet and was not seen by the technician. He proceeded to change the motor and reconnected the electrical cord beneath the cabinet. When he attempted to start the motor (approx. 1430) , there was no response. The Facility Manager, Industrial Safety Engineer for the ES&H Team, and the Plant Engineering electrician were contacted. They went to the electrical service panel located outside the building for this circuit and found that the breaker had tripped and opened (approx. 1450). It is believed that the failure of the motor had tripped and opened the breaker and the technician was unaware of the situation until he attempted to test the new motor. The Plant Engineering electrician reset the breaker and the blower motor operated properly. Global Security Directorate and LLNL Facility management were notified of the incident and began an investigation (1530)

The TSS technician failed to follow TSS and LLNL electrical safety procedures. The technician did not perform a zero energy check to ensure that the circuit was de-energized. Fortunately, the circumstances involved in

	<p>this situation never exposed the technician to an electrical hazard because the breaker was tripped and open and the motor control switch was in the off position.</p> <p>The DOE Electrical Severity Measurement Tool indicates a low rating for this incident.</p>
Cause Description:	
Operating Conditions:	N/A
Activity Category:	Maintenance
Immediate Action(s):	Upon learning of the incident, Global Security Directorate and LLNL Facility management began an investigation.
FM Evaluation:	The final report is due by 5/24/2008.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	<p>Yes.</p> <p>Before Further Operation? No</p> <p>By Whom: David Counts/Erica VonHolt</p> <p>By When: 05/24/2008</p>
Division or Project:	GS
Plant Area:	Site 200
System/Building/Equipment:	365
Facility Function:	Laboratory - Analytical
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	<p>01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)</p> <p>01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)</p> <p>01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)</p> <p>01O--Inadequate Conduct of Operations - Inadequate Maintenance</p> <p>01R--Inadequate Conduct of Operations - Management issues</p> <p>08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance</p> <p>11G--Other - Subcontractor</p> <p>12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)</p> <p>14E--Quality Assurance - Work Process Deficiency</p>
HQ Summary:	While replacing a blower motor in a biosafety cabinet in building 365, a subcontractor employee failed to comply with subcontractor and LLNL safety requirements. To isolate the unit, he unplugged an electric cord beneath the cabinet rather than the actual power cord located above the cabinet. He did not perform a zero energy check to ensure that the circuit

	was de-energized. When the technician was unable to start the new motor, he contacted plant personnel for support. Plant electricians found the circuit breaker for the motor had tripped and opened, apparently as a result of the motor failure. The technician was unaware of the situation until he attempted to test the new motor. The blower motor operated properly when the electrician reset the breaker. An investigation has been initiated.			
Similar OR Report Number:				
Facility Manager:	Name	Don Boyd		
	Phone	(925) 424-3254		
	Title	Global Security Deputy PAD		
Originator:	Name	Freeman, Jeffrey W		
	Phone	(925) 424-6787		
	Title	OCCURRENCE REPORTING		
HQ OC Notification:	Date	Time	Person Notified	Organization
	NA	NA	NA	NA
Other Notifications:	Date	Time	Person Notified	Organization
	04/09/2008	18:05 (PTZ)	Lois Marik	NNSA/LSO
	04/09/2008	17:57 (PTZ)	Becky Failor	LEDO
	04/09/2008	18:00 (PTZ)	Tracey Simpson	ESH TL
Authorized Classifier(AC):				

5)Report Number:	NA--SRSO-WSRC-TRIT-2008-0006 After 2003 Redesign		
Secretarial Office:	National Nuclear Security Administration		
Lab/Site/Org:	Savannah River Site		
Facility Name:	Tritium Facilities		
Subject/Title:	Lockout/Tagout Violation		
Date/Time Discovered:	04/17/2008 14:16 (ETZ)		
Date/Time Categorized:	04/17/2008 15:20 (ETZ)		
Report Type:	Notification		
Report Dates:	Notification	04/18/2008	09:51 (ETZ)
	Initial Update		
	Latest Update		
	Final		
Significance Category:	3		
Reporting Criteria:	2C(2) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected		

	discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.
Cause Codes:	
ISM:	2) Analyze the Hazards
Subcontractor Involved:	No
Occurrence Description:	At 1321 hours on 04/17/2008, SPLT (SPLT-HAOM-2008-0790) was issued to E&I mechanic to perform a light ballast replacement in HAOM, Room 270. The E&I mechanic de-energized the circuit per the SPLT and attached the tag. The tag was signed establishing the SPLT. An absence of hazardous energy check was performed on the ballast and voltage was found. At 1416 hours, Operations Management was notified of the presence of voltage.
Cause Description:	
Operating Conditions:	The HAOM Facility was in a normal operating configuration at the time of the event.
Activity Category:	Maintenance
Immediate Action(s):	When electrical energy was detected, the maintenance and HAOM management were notified.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Tritium Maintenance By When:
Division or Project:	SR - WSRC - TRIT
Plant Area:	H-Area / Tritium
System/Building/Equipment:	Electrical / HAOM / General Lighting
Facility Function:	Tritium Activities
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical) 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	A mechanic was preparing to perform a light ballast replacement in H-Area

Old Manufacturing, Room 270. The mechanic de-energized the circuit, attached the tag and the tag was signed. However, when an absence of hazardous energy check was performed on the ballast, voltage was found. Management was notified.

Similar OR Report Number:

Facility Manager:	Name	PRICE, CRAWFORD M
	Phone	(803) 208-8336
	Title	DEPUTY AREA OPERATIONS MANAGER

Originator:	Name	HALL, WILLIAM R
	Phone	(803) 208-8558
	Title	PRINCIPLE ENGINEER & TECHNICAL SUPPO

HQ OC Notification:	Date	Time	Person Notified	Organization
	04/17/2008	16:00 (ETZ)	Deshong, Edwin	NNSA FR

Other Notifications:	Date	Time	Person Notified	Organization
	04/17/2008	15:14 (ETZ)	Price, Crawford M.	Dep AOM
	04/17/2008	15:14 (ETZ)	Bickley, Donald	Eng Mgr
	04/17/2008	15:14 (ETZ)	Westergreen, Jeffery	HAOM Mgr
	04/17/2008	15:14 (ETZ)	Hayes, Dennis	DP AM

Authorized Classifier(AC): Hopperton, Daryl D. Date: 04/18/2008

6)Report Number: [NA--SS-SNL-1000-2008-0008](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Sandia National Laboratories - SS

Facility Name: SNL Division 1000

Subject/Title: Electrical Safety Interlocks Overridden in Bldg. 898

Date/Time Discovered: 04/25/2008 14:55 (MTZ)

Date/Time Categorized: 04/25/2008 15:10 (MTZ)

Report Type: Notification/Final

Report Dates:	Notification	04/28/2008	19:17 (ETZ)
	Initial Update	04/28/2008	19:17 (ETZ)
	Latest Update	04/28/2008	19:17 (ETZ)
	Final	04/28/2008	19:17 (ETZ)
	Revision 1	04/29/2008	09:58 (ETZ)

Significance Category: 4

Reporting Criteria: 10(3) - A near miss, where no barrier or only one barrier prevented an event

	<p>from having a reportable consequence. One of the four significance categories should be assigned to the near miss, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 4 occurrence)</p>
Cause Codes:	<p>A3B1C02 - Human Performance Less Than Adequate (LTA); Skill Based Errors; Step was omitted due to distraction -->couplet - A4B4C06 - Management Problem; Supervisory Methods LTA; Job performance and self-checking standards not properly communicated</p>
ISM:	<p>3) Develop and Implement Hazard Controls 4) Perform Work Within Controls</p>
Subcontractor Involved:	<p>Yes Enercon Services, Inc (ESI)</p>
Occurrence Description:	<p>On the afternoon of April 22, 2008, an Electrical Subject Matter Expert was called in to provide guidance on the repair of a HAST machine at SNL, southeast corner of TA-1, Building 898/2652 and during the consultation the SME observed some electrical safety interlocks had been overridden.</p> <p>The machine (208 volts) had been moved to its new location in a new lab. The machine had not been operating properly and had not been returned to full service since it had been moved to the new lab in September 2007. A staff scientist/engineer who had recently accepted responsibility for the repair of the HAST machine, had consulted with the manufacturer, who recommended that it be calibrated while it was energized. The engineer contacted a SNL Electrical Safety Subject Matter Expert (SME) for further electrical safety guidance prior to working on the machine. During the consultation, the SME observed that some interlocks had been overridden. At the time the interlocks were discovered the machine was not energized.</p> <p>It was found that the technician who previously had worked on the equipment had overridden the interlocks, and had not returned the interlocks to their normal state. The worker over rode the interlocks to perform an observation of status lights only visible when the equipment was energized with the covers removed. The vendor had provided guidance on how to perform this activity. The worker did not contact any portion of the circuit with either hands or equipment such as test leads. The center OP provides guidance and authorization for performing this type of work, including the control of interlocks. The technician had unplugged the machine and posted a large sign on the equipment indicating it was "Not In Use." The technician; however, failed to remove the interlock overrides when the observation was complete. As stated in the SNL Electrical Safety Manual, when interlocks or other protective systems are bypassed or otherwise rendered inoperative, approved procedures must be followed, and interlock devices or systems returned to normal operation and verified upon completion of the work. Personnel had completed appropriate training classes.</p>

	<p>From the time of the event, management has met and proceeded to gather all facts. This event was assessed by a SNL Electrical Safety SME using the severity index, but it scored in the non-reportable range because there was neither contact with energized components nor injury to the worker; therefore it was not considered an electrical safety issue but a work controls concern. For that reason, it was reported under the "Management Concerns" category to document the procedural violation.</p> <p>There were no injuries or property damage as a result of this event.</p>
Cause Description:	<p>Critique/Fact Finding Performed 4/25/08</p> <p>A3B1C02 Human Performance, Step was omitted due to distraction coupled with A4B4C06 Management Problem Supervisory Methods Job performance and self-checking standards was not properly communicated was the cause of this near miss. During the transfer of the maintenance responsibility the technician had placed the machine out of service and unplugged it. The worker was performing an observation of status lights only visible when the equipment was energized with the covers removed. The vendor had provided guidance on how to perform this activity. The worker did not contact any portion of the circuit with either his hands or equipment such as test leads. The center OP provides guidance and authorization for performing this type of work, including the control of interlocks. He failed to remove the interlock overrides when the observation was complete. In addition, the verification step that the interlocks had been returned to normal conditions was not verified by the person in charge of the work project.</p> <p>Methodology - The critique and fact finding session was performed on April 25, 2008 to determine the contributing causes of this near miss. The cause codes were determined from the Causal Analysis Tree, Rev 0.</p>
Operating Conditions:	Normal
Activity Category:	Startup
Immediate Action(s):	The interlocks were returned to their normal state and maintenance work was paused until proper procedures and controls are implemented. Review of other similar equipment to ensure that interlocks have not been defeated has been initiated with no deficiencies observed.
FM Evaluation:	<p>EOC# 6117</p> <p>Early Notification Dates and Times: EOC 4/25/08 - 15:38 FR - Heather Trumble, 4/25/08 - 15:45</p>
DOE Facility Representative Input:	
DOE Program Manager Input:	

Further Evaluation is Required:	No
Division or Project:	1000/Advanced Packaging - Nondestructive Test Lab
Plant Area:	Tech Area I
System/Building/Equipment:	HAST (Highly Accelerated Stress Test) Machine/Bldg. 898
Facility Function:	Laboratory - Research & Development
Corrective Action 01:	Target Completion Date: 06/30/2008 Actual Completion Date:
	Department 1715 - Develop specific maintenance procedure for the HAST machine. The procedure needs to include information on when interlocks or other protective systems are bypassed or otherwise rendered inoperative, and that approval is needed by the PIC (a Department Manager, Team Leader, Project Leader, or a person appointed by them to be in charge of a work project). The PIC may be either an SNL employee or a contractor. Interlock devices or systems shall be returned to normal operation and verified by the PIC upon completion of the work. (A3B1C02, A4BC06)
Corrective Action 02:	Target Completion Date: 06/30/2008 Actual Completion Date:
	Department 1741-1 - Communicate to Center 1700 in an all hands e-mail the significance of this near miss and the importance of not overriding interlocks. (A3B1C02, A4BC06)
Corrective Action 03:	Target Completion Date: 07/30/2008 Actual Completion Date:
	Department 1741-1 - Review Center 1700 Electrical Safety Operating Procedure for adequacy. (A3B1C02, A4BC06)
Corrective Action 04:	Target Completion Date: 07/30/2008 Actual Completion Date:
	Department 1715 - Verify that other similar equipment in Department 1715 does not have interlocks which are overridden. (A3B1C02, A4BC06)
Lessons(s) Learned:	
HQ Keywords:	01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control 01G--Inadequate Conduct of Operations - Inadequate Procedure 01O--Inadequate Conduct of Operations - Inadequate Maintenance 04A--Instrumentation and Controls - I & C Equipment 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical) 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14D--Quality Assurance - Documents and Records Deficiency 14E--Quality Assurance - Work Process Deficiency 14H--Quality Assurance - Inspection and Acceptance Testing Deficiency
HQ Summary:	On the afternoon of April 22, 2008, an Electrical Subject Matter Expert was called in to provide guidance on the repair of a HAST machine at SNL, southeast corner of TA-1, Building 898/2652 and during the consultation the SME observed some electrical safety interlocks had been overridden. The

interlocks were returned to their normal state and maintenance work was paused until proper procedures and controls are implemented. Review of other similar equipment to ensure that interlocks have not been defeated has been initiated with no deficiencies observed.

Similar OR Report Number:

Facility Manager:

Name	Barbara McGuire
Phone	(505) 284-7658
Title	1700 ESS&H Coordinator

Originator:

Name	LUCERO, JEWELLEE A
Phone	(505) 845-4727
Title	REPORTING ADMINISTRATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/25/2008	15:10 (MTZ)	Bess Campbell-Domme	1000
04/25/2008	15:10 (MTZ)	Tim Frock	1741
04/25/2008	15:42 (MTZ)	Gil Herrera	1700
04/25/2008	15:45 (MTZ)	Heather Trumble, FR	DOE/SSO
04/25/2008	16:40 (MTZ)	Kevin Ewsuk	1715

Authorized Classifier(AC): David Stein Date: 04/28/2008

7)Report Number: [NA--SS-SNL-2000-2008-0003](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Sandia National Laboratories - SS

Facility Name: SNL Division 2000

Subject/Title: Discovery of Unexpected Energy Source in Bldg. 890

Date/Time Discovered: 04/29/2008 07:30 (MTZ)

Date/Time Categorized: 04/29/2008 08:00 (MTZ)

Report Type: Update

Report Dates:

Notification	04/29/2008	18:14 (ETZ)
Initial Update	05/02/2008	13:26 (ETZ)
Latest Update	05/02/2008	13:30 (ETZ)
Final		

Significance Category: 3

Reporting Criteria: 2C(2) - Failure to follow a prescribed hazardous energy control process

	<p>(e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.</p> <p>10(3) - A near miss, where no barrier or only one barrier prevented an event from having a reportable consequence. One of the four significance categories should be assigned to the near miss, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 3 occurrence)</p>
Cause Codes:	
ISM:	
Subcontractor Involved:	No
Occurrence Description:	<p>On April 28, 2008, an employee was de-installing an old, out-of-service antenna controller that had not been used for ten years. The controller and controller amplifier switch were installed in a frame mounted into an equipment rack. The switch was hard-wired into a junction box beneath the floor. The employee believed the controller and wiring to the amplifier switch to be de-energized, as the switch had been connected to an antenna that had been removed in 2006 by a contract electrician. The employee unbolted and removed the frame from rack. To facilitate removal, the employee cut the cord approximately one foot from the controller switch and touched the other end of the cord to the equipment rack frame to confirm that it was de-energized. The metal wires within the cord insulation shorted to the frame, causing a small "burn" mark on the frame that showed that the wiring had been energized. Subsequent investigation showed that the wire was a switch leg providing power to the antenna amplifier powered from a panel in the 4th floor secure area.</p> <p>There were no injuries as a result of this event. Under the Electrical Severity Measurement Tool, this event scores as follows: Electrical Hazard: 10 (120V); Environment Factor: 0; Shock Proximity Factor: 10 (within prohibited approach boundary); Arc Flash: 0; Thermal Factor: 0; no PPE mitigations, Injury Factor:1. Total Severity event score: 110 (Medium significance).</p>
Cause Description:	
Operating Conditions:	Normal
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s):	<p>Employee secured the area immediately following the event so that no one could enter.</p> <p>A Facilities electrician was immediately called in to verify that the area was left in a safe condition.</p>

	SNL Electrical Safety was notified.		
	SNL Facilities personnel called Emergency Management at "311" and called the 2600 ES&H Coordinator.		
FM Evaluation:	DOE/SSO Early Notification Date & Time: EOC - 4/29/08 - 12:30 FR - Joyce Arviso-Benally - 4/29/08 - 09:04 UPDATE 5/2/08 Added Significance Category - Near Miss 10(3) to OR. END OF UPDATE		
DOE Facility Representative Input:			
DOE Program Manager Input:			
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Causal Analysis Team By When: 06/13/2008		
Division or Project:	2000/Engineering Design & Integration		
Plant Area:	Tech Area I		
System/Building/Equipment:	Bldg. 890, Rm. 3079B/Equipment in equipment rack		
Facility Function:	Laboratory - Research & Development		
Corrective Action:			
Lessons(s) Learned:			
HQ Keywords:	01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous) 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 01Q--Inadequate Conduct of Operations - Personnel error 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency		
HQ Summary:	While removing an old, out of service antenna controller, an employee cut the power cord, and touched the other end of the cord to the equipment rack frame to confirm that it was de-energized. The wires within the cord insulation shorted to the frame, causing a small "burn" mark on the frame that showed that the wiring had been energized. The employee secured the area immediately following the event, and notifications were made.		
Similar OR Report Number:			
Facility Manager:	<table border="1"> <tr> <td>Name</td> <td>Sally Douglas</td> </tr> </table>	Name	Sally Douglas
Name	Sally Douglas		

	Phone	(505) 844-0568		
Originator:	Name	LUCERO, JEWELLEE A		
	Phone	(505) 845-4727		
	Title	REPORTING ADMINISTRATOR		
HQ OC Notification:	Date	Time	Person Notified	Organization
	NA	NA	NA	NA
Other Notifications:	Date	Time	Person Notified	Organization
	04/29/2008	09:04 (MTZ)	Joyce Arviso-Benally, FR	DOE/SSO
	04/29/2008	09:44 (MTZ)	Whitney Wolf	2000
	04/29/2008	09:44 (MTZ)	John Vonderheide	2660
	04/29/2008	09:44 (MTZ)	Carmen Allen	2662
	04/29/2008	09:44 (MTZ)	James Woodard	2600
Authorized Classifier(AC):	Sally Douglas		Date: 04/29/2008	

8)Report Number:	NE-ID--BEA-SMC-2008-0002 After 2003 Redesign		
Secretarial Office:	Nuclear Energy, Science and Technology		
Lab/Site/Org:	Idaho National Laboratory		
Facility Name:	Specific Manufacturing Capability		
Subject/Title:	Unexpected Energy Discovered at Disconnect During System Operability Testing		
Date/Time Discovered:	04/02/2008 10:30 (MTZ)		
Date/Time Categorized:	04/02/2008 12:00 (MTZ)		
Report Type:	Notification		
Report Dates:	Notification	04/07/2008	18:48 (ETZ)
	Initial Update		
	Latest Update		
	Final		
Significance Category:	3		
Reporting Criteria:	2C(2) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.		

Cause Codes:	
ISM:	
Subcontractor Involved:	Yes CWI LLC
Occurrence Description:	<p>On April 2, 2008 during a System Operability test on new equipment that had recently been installed at SMC, no electrical energy was found at the equipment. Further testing revealed that two circuits had been cross wired such that the wires that were supposed to be feeding circuit "A" were actually feeding circuit "B" and vice versa. There were no exposed wires or electrical hazards, thus there were no hazards to personnel, however, the discovery during the trouble shooting of energy in circuit "B" when circuit "A" was energized was unexpected.</p> <p>Two new vaporizers ("A" and "B") were being installed on existing propane tanks, one at a time, to allow for continued system operation during system modifications. The first vaporizer "A" had been installed and the conductors routed from the subpanel breaker (240 VAC), through a local disconnect, and into the vaporizer unit. Conductors for the second vaporizer "B" (not yet installed) had been routed from a different breaker in the same subpanel, through a different local disconnect, and to the location near the tank where the vaporizer would be located. The conductors for unit "B" were terminated with wire nuts and tape, coiled, secured to the conduit, and the area roped off. The system was then turned over to SMC operations for testing of vaporizer "A."</p> <p>For testing; the breaker for vaporizer "B" was locked and tagged open, and the breaker for vaporizer "A" was closed to test system operation. While SMC Operations was performing testing of the "A" vaporizer, the system failed to operate as expected. SMC Operations requested an investigation by force account (contracted) electricians. During the investigation it was noted that there was no electrical power to vaporizer "A" as expected, and an electrical proximity tester detected power at the local disconnect for vaporizer "B" that was supposedly isolated by lockout/tagout. Following the discovery of electrical energy at circuit "B," the supply breaker for circuit "A" was opened and locked/tagged, ensuring that both circuits were deenergized.</p> <p>Further testing revealed that two circuits had been cross wired such that the wires that were supposed to be feeding vaporizer "A" were actually feeding vaporizer "B" and vice versa.</p> <p>A critique was held at 2:00 pm on April 2. During the critique it was noted that wiring had been installed and tested on March 17, 2008. Testing documentation was shown that meggering of the wires after pulling them through the conduit had been successfully performed, and that end to end continuity and labeling had been performed. During the critique; it was</p>

	<p>noted that communication during the electrical testing was less than ideal due to the distance, physical location, and other work in the area.</p> <p>Additional investigation on April 3, 2008 indicated that the labeling of the wires was done incorrectly.</p> <p>Management determined the event as reportable since the energy was not controlled at the source (locked out) although the area was roped off and the conductors were capped and taped at the terminus. 2C(2)3 was chosen, not because of failure to follow the lockout process, but because of the site condition (incorrect wiring) that resulted in unexpected energy.</p>
Cause Description:	
Operating Conditions:	Construction, Equipment installation
Activity Category:	Construction
Immediate Action(s):	<p>Stop Work</p> <p>Lockout the associated breakers</p> <p>Secure the area</p>
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	SMC
Plant Area:	TAN-677A
System/Building/Equipment:	TAN-679A
Facility Function:	Uranium Conversion/Processing and Handling
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	<p>01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)</p> <p>01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control</p> <p>01P--Inadequate Conduct of Operations - Inadequate Oral Communication</p> <p>01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation</p> <p>07D--Electrical Systems - Electrical Wiring</p> <p>11G--Other - Subcontractor</p> <p>12C--EH Categories - Electrical Safety</p> <p>14D--Quality Assurance - Documents and Records Deficiency</p> <p>14E--Quality Assurance - Work Process Deficiency</p> <p>14H--Quality Assurance - Inspection and Acceptance Testing Deficiency</p>
HQ Summary:	During a System Operability test on new vaporizers that had been installed

on existing propane tanks, it was discovered that two circuits had been crossed. There were no exposed wires or electrical hazards, thus there were no hazards to personnel; however, the configuration resulted in unexpected energy in one of the circuits. Investigation revealed that the event was caused by incorrect labeling of wires.

Similar OR Report Number: 1. EM-RL--PHMC-FFTF-2007-0001

Facility Manager:	Name	SPELLS, JIMMY L
	Phone	(208) 526-6012
	Title	FACILITY SUPERVISOR

Originator:	Name	EARL, SCOTT W
	Phone	(208) 526-6540
	Title	

HQ OC Notification:	Date	Time	Person Notified	Organization
	NA	NA	NA	NA

Other Notifications:	Date	Time	Person Notified	Organization
	04/02/2008	12:05 (MTZ)	D. L. Kudsin	SMC
	04/02/2008	12:35 (MTZ)	Art Clark	BEA
	04/02/2008	12:15 (MTZ)	Ron James	DOE-ID

Authorized Classifier(AC): Karl Griffin Date: 04/07/2008

9)Report Number: [SC--ASO-ANLE-ANLEAPS-2008-0002](#) After 2003 Redesign

Secretarial Office: Science

Lab/Site/Org: Argonne National Laboratory East

Facility Name: Advanced Photon Source

Subject/Title: Worker Encountered Unexpected 208V Source On Wire Thought To Be 24V

Date/Time Discovered: 04/15/2008 16:10 (CTZ)

Date/Time Categorized: 04/16/2008 11:00 (CTZ)

Report Type: Notification

Report Dates:	Notification	04/18/2008	16:21 (ETZ)
	Initial Update		
	Latest Update		
	Final		

Significance Category: 3

Reporting Criteria: 2C(2) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected

	discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.
Cause Codes:	
ISM:	4) Perform Work Within Controls
Subcontractor Involved:	No
Occurrence Description:	<p>APS Engineering Support Division (AES) staff were notified on April 15 at 4:10 PM that on April 10 a member of the Dupont-Northwestern-Dow - Collaborative Access Team (DND-CAT) had unexpectedly encountered 208 V on a wire thought to have been at 24 V.</p> <p>DND-CAT operates two beamlines at APS, a bending magnet beamline (5-BM) and an insertion device beamline (5-ID). In accordance with signed agreements with APS, CAT personnel may perform work on beamline components. An Oxford Cryocooler system is used to provide liquid nitrogen to cool two monochromator crystals in the 5-ID x-ray beam. An independent subsystem (ILM202) controls operation of several portions of the cryocooler system.</p> <p>DND-CAT personnel noted erratic operation of the Oxford Cryocooler system several days prior to April 10. DND-CAT personnel suspected the ILM202 unit was failing and decided on April 10 to replace the ILM202 unit with a spare ILM202 unit available from APS to see whether or not the erratic performance would stop. The DND-CAT Beamline Technical Systems Engineer (worker) discussed the proposed work to replace the ILM202 with the beamline supervisor. They believed that the work would not expose the worker to any hazardous electrical sources as the task involved removing cables connected on the back panel of the ILM202 unit (i.e., similar to removing cables connected on the back panel of a personal computer). The ILM202 unit was powered down from the front panel switch, the power cable to the unit box was removed, and cables were disconnected from the back panel as planned. However, the worker noticed there was one cable that entered the unit from the back through a port labeled "Relays." The worker realized this cable was wired directly into the circuit board inside the ILM202 unit box.</p> <p>The worker was knowledgeable of the DND-CAT beamlines electrical, signal, and control systems. Based on this knowledge the worker was aware that solenoids currently being used on the cryocooler system operated at 24 V and that signal cables were at either 24 V or 5 V. The worker concluded that the cable wired to the circuit board either had 24 V power or was unpowered. The worker then opened the ILM202 unit box by removing the lid so the cable could be disconnected from the circuit board. In the worker's opinion this task would not involve working on any circuit energized with</p>

more than 50 V and he had taken the requisite training to perform work on energized circuits below 50 V.

After opening the ILM202 unit box, the worker saw that the cable contained three wires connected to three terminal points on a relay mounted directly on the circuit board. The worker proceeded to loosen the terminal block points where the wires were connected, removed the three small terminal block wire extensions from the terminal block, and then pulled the cable out through the port on the back panel of the unit box. The cable was allowed to hang freely suspended in the interior of the Oxford Cryocooler unit.

At this point the worker realized he had not measured the voltage levels on the three wires in the cable before disconnecting them. The worker proceeded to measure the voltage levels on the three small terminal block wire extensions and discovered that one voltage level between wires was around 208 V. The worker immediately stopped and contacted his supervisor who was nearby.

The worker did not receive an electrical shock nor were the wires within the cable ever shorted together.

The Argonne Electrical Safety subject matter expert has calculated the electrical severity index of this event using guidance developed by LANL and the EFCOG Electrical Safety Subgroup. The calculated index is 110 (medium significance).

Cause Description:

The DND-CAT investigation determined that the relay the cable was attached to was associated with a solenoid driven valve formerly used to control filling of the low pressure liquid nitrogen bath in the system. This solenoid was activated using the relay mounted on the ILM202 unit circuit board. This relay closed a contact to complete a circuit for providing power to the valve solenoid. The 5-ID Oxford Cryocooler system is an older model that used 208 V powered solenoids. In some cases for older Oxford Cryocooler assemblies, the cable that ran to the valve solenoid was wired directly to the PC board of the ILM202 unit. In other cases, the cable ran to a connector on back of the ILM202 unit. The 5-ID Oxford Cryocooler system had been modified to provide an alternate 24 VDC, PLC operated fill line to the liquid nitrogen bath. Due to that modification, the circuit containing the 208 V valve solenoid was opened at the valve solenoid by removing a cable length, but the connection to the ILM202 unit relay from the Oxford Cryocooler 208 V power supply remained in place. The ILM202 unit remained active in order to operate other portions of the cryocooler system.

The DND-CAT investigation also identified several deficiencies in work performance:

1. The supervisor failed to do a field inspection of the work area before issuing authorization to proceed.

	<p>2. The worker proceeded past his authorized scope of work by opening the unit as only work on externally connected cables was considered in the original work scope.</p> <p>3. The worker failed to verify the possible presence of voltage on the "Relays" cable before disconnecting its wires from the internal ILM202 circuit board.</p>
Operating Conditions:	Normal Operations
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s):	<p>The 5-ID beamline was taken off line (experiment halted and beamline shutters closed). The Oxford Cryocooler system was then disconnected from its 208 VAC power outlet. After waiting for a short time to ensure all voltages in the system had been dissipated, a voltage check was made of the valve solenoid cable to confirm it was at zero voltage. The 208 V connection and cable were tagged as high voltage, the cable was reattached to its original termination points on the relay in the original ILM202 unit, and the unit cover installed. This ensured the 208 V cable was safely terminated until further evaluation could be conducted of the cryocooler system. The spare ILM202 unit was installed and all 24 V connections that had been unplugged from the original unit were now plugged into the back of the spare unit and the spare unit was then energized using the power cable that had been plugged into the original unit. The cryocooler system controls that had been operating on the original unit were now being operated from the spare unit. The cryocooler system was re-energized, found to be safely functioning, and the 5-ID beamline was placed back into operation.</p> <p>An investigation was conducted by the DND-CAT operations director and the results provided to APS AES staff in the form of a memorandum on April 15. The AES Associate Division Director for Mechanical and Interlock Systems subsequently issued an email directive to all CATs notifying them of the incident and stating that no work was to be performed on Oxford Cryocooler assemblies pending notification, review, and approval by AES staff.</p>
FM Evaluation:	<p>The DND-CAT staff took appropriate actions to restore the cryocooler system to a safe state and to investigate the event. The results of their investigation have been included in the "Description of Cause" in the Notification report for informational purposes. As the DND-CAT staff are not as familiar with DOE standards as APS staff, APS AES staff will perform a causal analysis to ensure the applicable cause codes are identified, reported in either an Update or Final Report, and that appropriate corrective actions to address these causes are developed.</p> <p>The involved cryocooler system was originally designed for use with British and European standard electrical systems. Later models were designed for use with USA standard electrical systems. The involved cryocooler system had been modified to provide easier use with USA standard electrical</p>

	systems and that modification affected the worker's understanding of the 5-ID beamline electrical systems. This will be further evaluated in the APS AES causal analysis.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: AES Staff By When:
Division or Project:	APS Engineering Support (AES)
Plant Area:	APS Experiment Hall
System/Building/Equipment:	5ID Beamline/400/cryocooler control unit ILM202
Facility Function:	Accelerators
Corrective Action 01:	Target Completion Date: 05/30/2008 Actual Completion Date:
	AES staff will review the event and DND-CAT investigation summary in order to perform a causal analysis and to determine appropriate corrective actions.
Lessons(s) Learned:	
HQ Keywords:	01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous) 01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control 01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance 01O--Inadequate Conduct of Operations - Inadequate Maintenance 01R--Inadequate Conduct of Operations - Management issues 07E--Electrical Systems - Electrical Equipment Failure 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance 12C--EH Categories - Electrical Safety 14D--Quality Assurance - Documents and Records Deficiency 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	On April 10 a member of the Dupont-Northwestern-Dow - Collaborative Access Team (DND-CAT) unexpectedly encountered 208 volts on a wire thought to have been at 24 volts. The worker had been replacing the ILM202 unit, which controls several portions of the Oxford Cryocooler system. The unit had been powered down. After opening it, the worker saw that a cable contained three wires connected to three terminal points on a relay mounted directly on the circuit board. The worker proceeded to loosen the terminal block points where the wires were connected, and pulled the cable out through the port on the back panel of the unit box. The worker then measured the voltage levels on the terminal block wire extensions and

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Authorized Classifier(AC):																

10)Report Number:	SC--BHSO-BNL-BNL-2008-0004 After 2003 Redesign														
Secretarial Office:	Science														
Lab/Site/Org:	Brookhaven National Laboratory														
Facility Name:	Brookhaven National Laboratory (BOP)														
Subject/Title:	Minor Electrical Shock														
Date/Time Discovered:	04/04/2008 09:30 (ETZ)														
Date/Time Categorized:	04/04/2008 10:15 (ETZ)														
Report Type:	Notification														
Report Dates:	<table border="1"> <tr> <td>Notification</td> <td>04/08/2008</td> <td>16:13 (ETZ)</td> </tr> <tr> <td>Initial Update</td> <td></td> <td></td> </tr> <tr> <td>Latest Update</td> <td></td> <td></td> </tr> <tr> <td>Final</td> <td></td> <td></td> </tr> </table>			Notification	04/08/2008	16:13 (ETZ)	Initial Update			Latest Update			Final		
Notification	04/08/2008	16:13 (ETZ)													
Initial Update															
Latest Update															
Final															
Significance Category:	2														
Reporting Criteria:	2C(1) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or disturbance of a previously unknown or mislocated hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas) resulting in a person contacting (burn, shock, etc.) hazardous energy.														
Cause Codes:															

ISM:	
Subcontractor Involved:	No
Occurrence Description:	<p>At Brookhaven National Laboratory (BNL), on April 4, 2008, at approximately 9:00 AM, two Hazardous Waste Management Technicians were sampling radioactive waste water from tank 4 in building 811. The tank recirculation pump is located in a radioactively contaminated pit requiring the technicians to be dressed in blue tyvek suits, rubber booties, face shield, and double nitril gloves. The sampling evolution requires one technician to operate the sampling valve located at chest height while the other technician holds the sampling containers under the discharging tubing.</p> <p>During sampling the technician holding a plastic container leaned against a conduit and received a "tingle," which the technician perceived as a static shock. This conduit is the transition of the conduit for the recirculation pump motor 480 volt feed and a support conduit to a floor base plate. During an additional sample operation the same technician again leaned against the conduit and received another "tingle," which resulted in halting work.</p>
Cause Description:	
Operating Conditions:	Normal Operations
Activity Category:	Inspection/Monitoring
Immediate Action(s):	<p>After the second "tingle," sampling operations were halted, the area was made safe/exited and supervision was contacted. The supervisor reported the incident to the event categorizer and sent the technician to the on-site Medical Clinic for evaluation. The technician was returned to work with no restrictions.</p> <p>A Plant Engineering has commenced an investigation into the cause of the minor shock.</p>
FM Evaluation:	An investigation is underway to determine the source of the hazardous electrical energy that resulted in the minor shock. The source of energy appears to be 120 VAC from faulty heat tape.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	<p>Yes. Before Further Operation? Yes By Whom: J. Durnan By When: 04/11/2008</p>
Division or Project:	Radioactive Waste Management
Plant Area:	Building 811
System/Building/Equipment:	Building 811
Facility Function:	Nuclear Waste Operations/Disposal

Corrective Action:																	
Lessons(s) Learned:																	
HQ Keywords:	07D--Electrical Systems - Electrical Wiring 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock 12C--EH Categories - Electrical Safety 14L--Quality Assurance - No QA Deficiency																
HQ Summary:	Two Hazardous Waste Management Technicians were sampling radioactive waste water from tank 4 in building 811. On two occasions during sampling, one technician leaned against a conduit and received a "tingle," which the technician perceived as a static shock. This conduit is the transition of the conduit for the tank recirculation pump motor 480 volt feed and a support conduit to a floor base plate. On the second occasion, work was stopped, the area was made safe, and supervision was contacted.																
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Facility Manager:	<table border="1"> <tr> <td>Name</td> <td>GOODE, GEORGE</td> </tr> <tr> <td>Phone</td> <td>(631) 344-4549</td> </tr> <tr> <td>Title</td> <td>EWMS DIVISION MANAGER</td> </tr> </table>	Name	GOODE, GEORGE	Phone	(631) 344-4549	Title	EWMS DIVISION MANAGER										
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Authorized Classifier(AC):																	

11)Report Number:	SC--BSO-LBL-OPERATIONS-2008-0005 After 2003 Redesign		
Secretarial Office:	Science		
Lab/Site/Org:	Lawrence Berkeley Laboratory		
Facility Name:	Operations Division		
Subject/Title:	LOTO Deficiency While Adding Receptacles		
Date/Time Discovered:	04/14/2008 14:15 (PTZ)		
Date/Time Categorized:	04/14/2008 14:40 (PTZ)		
Report Type:	Update		
Report Dates:	Notification	04/16/2008	21:05 (ETZ)

	Initial Update	04/18/2008	12:06 (ETZ)
	Latest Update	04/18/2008	12:06 (ETZ)
	Final		
Significance Category:	3		
Reporting Criteria:	2C(2) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.		
Cause Codes:			
ISM:	2) Analyze the Hazards 3) Develop and Implement Hazard Controls 4) Perform Work Within Controls		
Subcontractor Involved:	No		
Occurrence Description:	<p>At approximately 1100 on 04/10/2008, a Facilities electrician discovered an energized circuit while adding receptacles to an existing series of junction boxes in Building 2, room 102.</p> <p>The electrician had turned off several circuits corresponding to the area of work. As he removed a junction box from a conduit, a hot and a neutral wire touched each other, shorted out and tripped the circuit breaker in an 120V/208V electrical panel. The electrician did not receive any electric shock and there were no injuries, nor equipment damage.</p>		
Cause Description:			
Operating Conditions:	Indoors, lighted, dry		
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)		
Immediate Action(s):	The electrician verified the circuit that tripped and added lockout to that circuit. The electrician examined all circuit wiring associated with this area and determined that except for the shorted-out wires, no other wires were damaged. The electrician removed damaged wires from the conduit.		
FM Evaluation:	<p>The electrician notified his supervisor of the incident on 04/14/2008.</p> <p>04/18/2008 UPDATE: To uncheck field #23 "Recurring event?" to return this report to its intended category 3 significance level.</p>		
DOE Facility Representative Input:			
DOE Program Manager Input:			
Further Evaluation is	Yes.		

Required:	Before Further Operation? No By Whom: Facilities By When:															
Division or Project:	Facilities															
Plant Area:	B2 Room 102															
System/Building/Equipment:	building 2 electrical circuit															
Facility Function:	Laboratory - Research & Development															
Corrective Action:																
Lessons(s) Learned:																
HQ Keywords:	01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 07D--Electrical Systems - Electrical Wiring 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency															
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Date	Time	Person Notified	Organization													
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04/14/2008	14:45 (PTZ)	Julie Henderson	BSO
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Authorized Classifier(AC):

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