



Office of Health, Safety and Security

Monthly Analysis of Electrical Safety Occurrences



June 2013

Purpose

This analysis resource provides the Department of Energy's (DOE) electrical safety community with a compilation of, and informal observations on, electrical safety occurrences reported through the Occurrence Reporting and Processing System (ORPS). The topics addressed in this analysis resource are responsive to requests for this information by the electrical safety community, who utilizes this information through monthly conference calls to foster information exchange and continual learning regarding electrical safety occurrences and their prevention across the DOE complex.

Key Observations

The number of electrical safety occurrences in June decreased from seventeen in May to thirteen. There was one reported electrical shock, one electrical intrusion occurrence, and six reported lockout/tagout occurrences. In June, workers identified electrical hazards 62 percent of the time, which is a slight decrease in hazards identification from 71 percent in May.

Electrical Safety Occurrences

The following sections provide a summary of selected occurrences based upon specific areas of concern regarding electrical safety (e.g., bad outcomes or prevention/barrier failures). The complete list and full report of the occurrence reports is provided in Attachment 2.

Electrical Shock

There was one reported electrical shock in the month of June, which is a decrease from the three shocks reported in May. This shock occurred when an operator was turning on a light switch. An electrician performed meter checks on the switch, the door and other components and found no stray potentials. However, the electrician found that the switch itself was worn and operated sloppily and that the switch arm illumination was off. The light switch was removed and it was discovered that the switch arm was broken and a small portion of the plastic switch arm came loose when disassembled, and a connection to the indicator light mounted in the light switch lever arm was exposed.

Figure 1 shows a 3-year trend of electrical shocks for the DOE complex. During this period, the average number of electrical shocks has remained below three (2.7) shocks per month.

Figure 1 – Three-Year Trend of Electrical Shocks

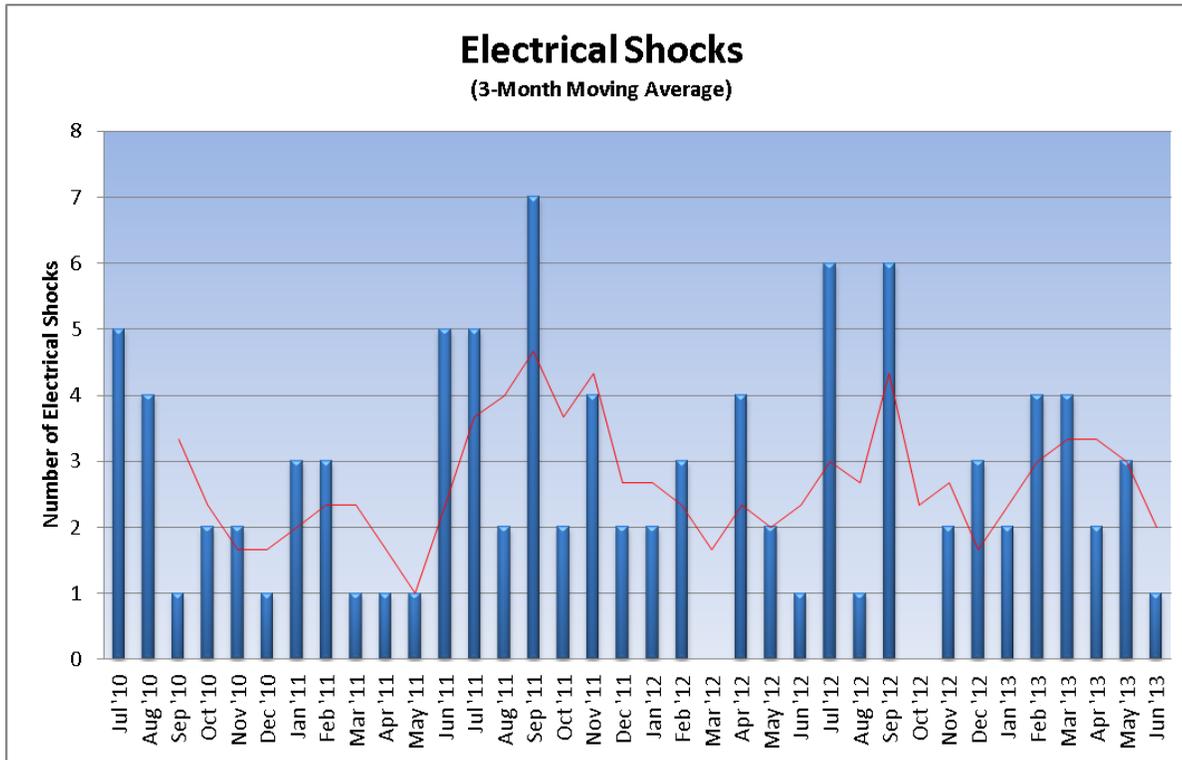


Figure 2 shows electrical shocks by worker type through June 2013. The number of shocks involving electrical workers slowly increased through 2012 and then dropped in 2013, while those involving non-electrical workers decreased after 2011. Since 2008, the majority of shocks (about 74 percent) involve non-electrical workers.

Figure 2 - Electrical Shock by Worker Type

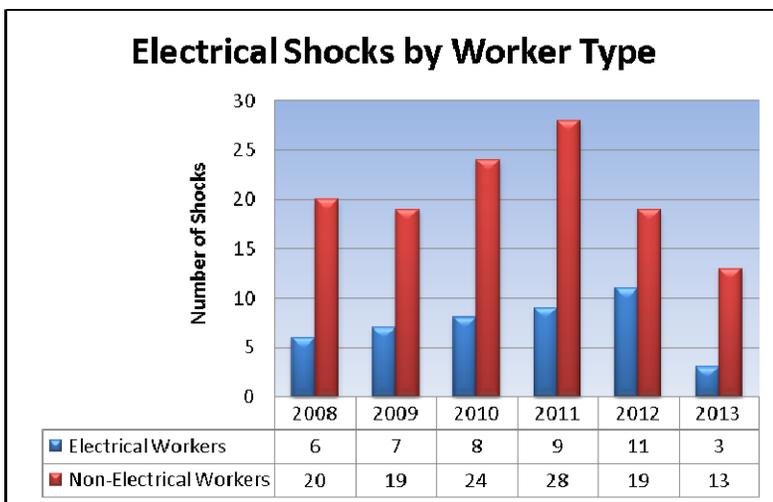
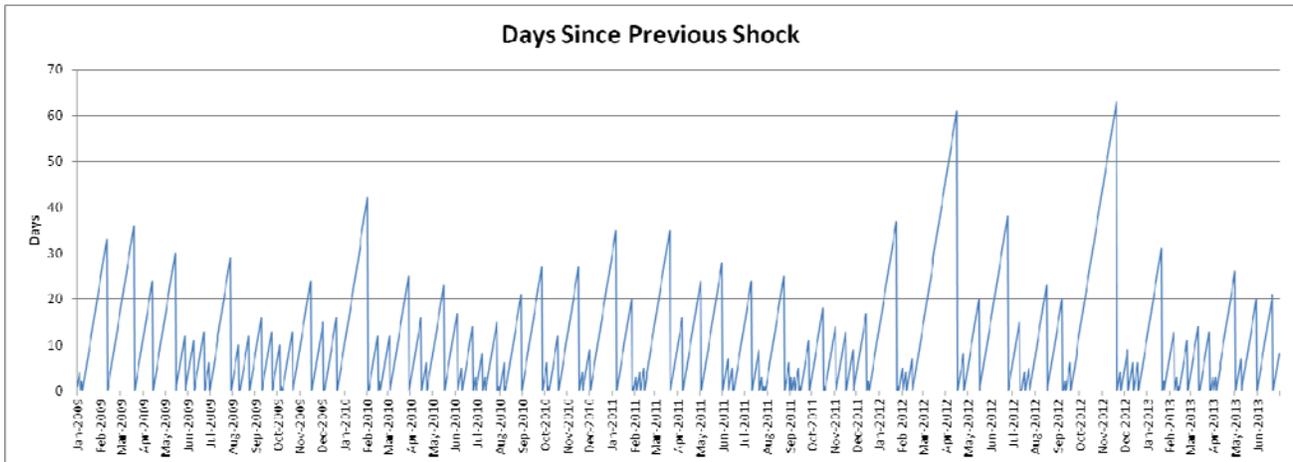


Figure 3 shows the number of days since the previous electrical shock for the DOE complex. The longest interval was 63 days (November 20, 2012) and the present interval is 8 days as of June 30.

Figure 3 - Days since Previous Shock

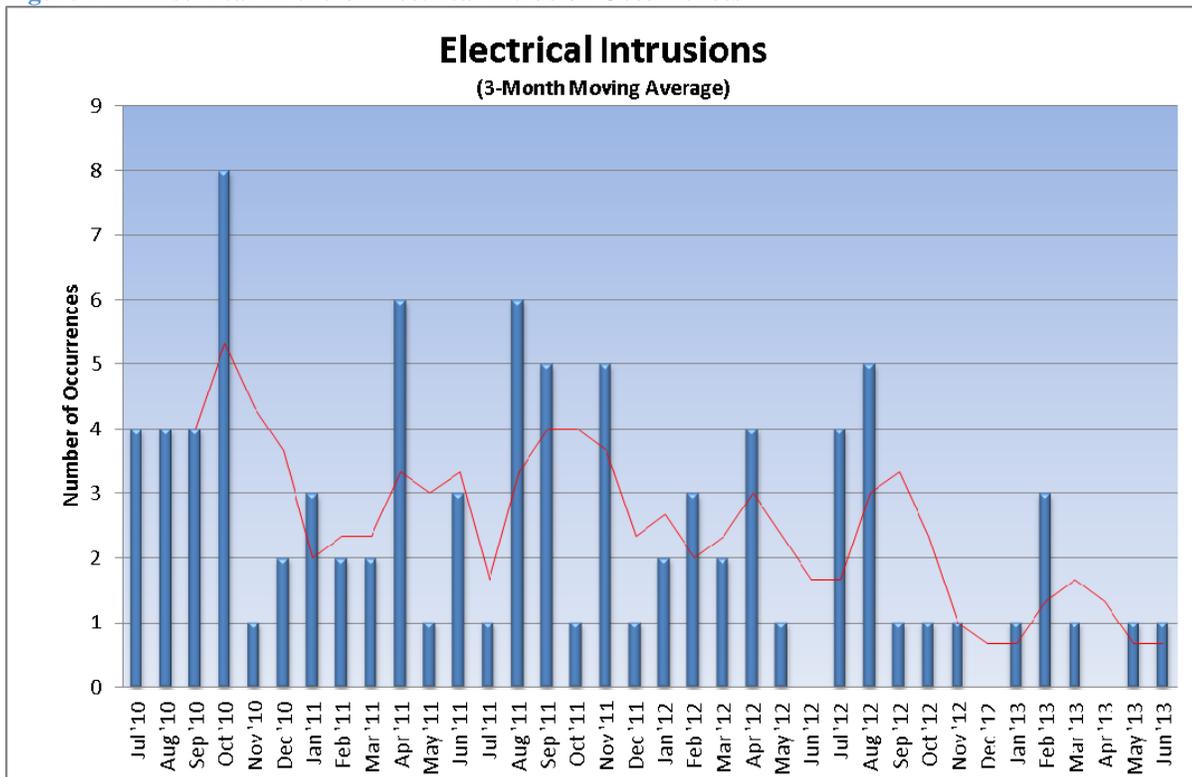


Electrical Intrusion

There was one electrical intrusion occurrence (i.e., cutting/penetrating, excavating, or vehicle/equipment contact of overhead electrical conductors) for June, which is the same as in May. In this occurrence, operators hit and damaged an energized power cord with a wheeled lift table, causing a small electrical arc that tripped a ground fault circuit breaker.

Figure 4 shows a 3-year trend of electrical intrusion occurrences for the DOE complex. During this period we have seen an average of just under 3 occurrences per month (2.5).

Figure 4 – Three-Year Trend of Electrical Intrusion Occurrences



Hazardous Energy Control

In June there were six reported occurrences involving lockout/tagout (LOTO), which is a decrease from the nine occurrences reported in May. These occurrences are summarized below.

Occurrences Involving Lockout/Tagout

1. Electrical Maintenance personnel detected voltage on a circuit that should have been de-energized while performing the required zero energy check for a LOTO to install a pole switch on a distribution pole. They immediately stopped testing and notified Power Operations. An investigation revealed that, although all steps of the LOTO procedure were followed, three individuals mistakenly confirmed the switch position as open when it was actually closed. It was noted that this recently installed pole switch differed from other site pole switches in that it operates horizontally rather than vertically. Power Operations placed pole switch in the proper open position and reissued the LOTO. Electrical Maintenance performed a satisfactory zero energy check.
2. A system engineer removed a cover from an electrical control panel that contained 480-volt power without a LOTO in place. The panel is inside a breathing air trailer and the system engineer wanted to access the inside of the panel cover where he thought he might find a vendor supplied electrical schematic. Power to the trailer was isolated at the main disconnect switch for completion of preventive maintenance on the breathing air trailer; however, there was no work package or LOTO in place to remove the electrical control panel cover. Upon realizing that access to the electrical control panel required a LOTO because it contained power relays, the system engineer closed the panel and notified supervision.
3. A work team identified that the Component Position field of LOTO tag had not been filled in during a walk-down of the lock and tag boundary for the annual inspection of heating and ventilation equipment . The work was immediately stopped and management was notified.
4. A contractor did not properly implement personal protective equipment for operating a 480-volt disconnect nor properly implement a LOTO for accessing a climatic chamber controller cabinet that had exposed 110-VAC circuitry. A stand down was initiated regarding all activities concerning that disconnect and access to the controller cabinet. During the critique, it was revealed that personnel supporting the contractor did not properly lockout the disconnect switch during work in the climatic chamber cabinet nor perform a zero energy verification when they left the area for a break.
5. An injection sealing subcontractor foreman violated the LOTO process when he removed a LOTO lock key from an employee's desk drawer and gave it to his assistant without the employee's knowledge. The foreman went to the employee's office, but the employee was not there at the time. The foreman knew that the employee had left his LOTO lock on the lockbox after the previous day. The foreman then crossed the employee's name off the LOTO tag that accompanied the lock on the lockbox and replaced it with the name of the assistant. The foreman's site access ID was terminated and was directed to leave the site.

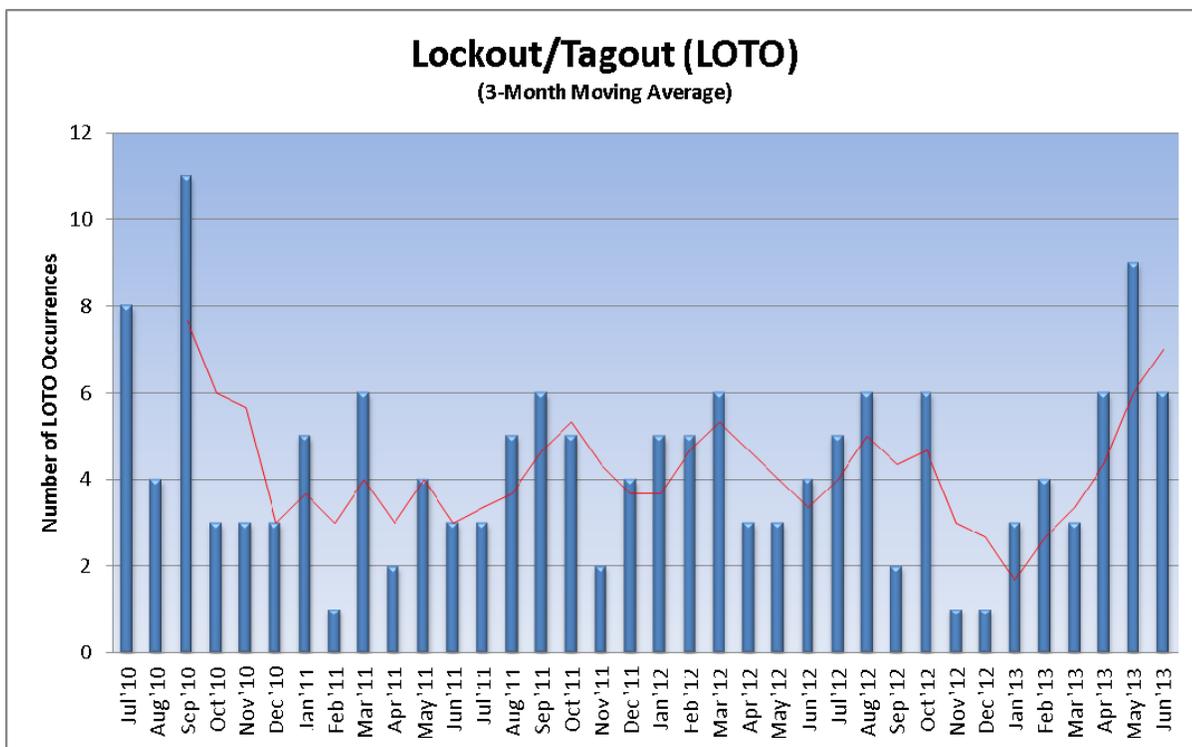
6. During routine rounds, a Power Operator observed a key hanging from an authorized worker's lock (AWL) located on a molded case breaker in a main electrical room. A lockout hasp was used to facilitate the lock and tag, since a total of four locks and tags were to be hung (one Controlling Organization and three Authorized Worker locks and tags). The failure of the worker to control his key represents a failure to follow the site's hazardous energy control program. Work was paused until the AWL and key were removed.

Occurrences Involving Discovery of Uncontrolled Hazardous Energy

1. An uncontrolled hazardous energy source was discovered in a breaker panel. The condition was a result of two empty circuit breaker spaces in the panel with covers installed in a configuration that allowed exposure to 208 volts of hazardous electrical energy. Access to the room containing the breaker panel was immediately restricted.
2. Electrical subject matter experts determined that an uncontrolled electrical energy source exists underneath main electrical switchgear. A small section of the switchgear bottom panel is open to the ceiling space below, which places several rooms below the switchgear room within the initial estimated arc flash boundary for the incoming electrical feed. Access has been restricted to the rooms below the switchgear that are within the arc flash boundary.

Figure 5 shows a 3-year trend of LOTO occurrences for the DOE complex. The monthly average is 4.3 occurrences.

Figure 5 – Three-Year Trend of Lockout/Tagout Occurrences



Electrical Near Miss

There were five electrical near miss occurrences reported in June, which is an increase from the three occurrences in May.

1. A wheeled lift table hit and damaged an energized power cord causing a small electrical arc. (See Electrical Intrusion Section)
2. Instrument Technicians were evaluating an issue with air handler and hood vents and they suspected line voltage issues feeding the variable frequency drive. The incoming voltage was 480, 3-phase, and the technicians were using insulated alligator clip leads from a Fluke voltage meter to monitor the voltage. They were wearing Level 2 personal protection as they attached the first clip. When they applied the second clip, the clip lead shorted phase to phase and immediately blew the line voltage fuses. The technicians stopped work and notified their supervisor.
3. A subcontractor was using a fish tape to assist in pushing wires through conduit to support an upgrade to an HVAC control system when the tape touched a terminal on a transformer causing a small arc. The conduit is located inside and at the top of a 120-volt control transformer which was energized at the time the wires were being placed. The transformer was covered with a voltage rated vinyl insulation barrier to protect the workers and the equipment during this activity. Work was stopped, notifications were made, and the system was placed in an operable and safe condition.
4. An employee missed a step in the switch tag procedure and closed 12kV into a set of safety grounds while energizing a newly constructed laboratory building. Facilities personnel had grounded a switch at the building pad, but when they attempted to re-energize the building, they failed to remove the safety ground in another building, thereby tripping a circuit breaker and causing a sag in power throughout the laboratory. All safety precautions worked as designed so there was no personnel exposure or injury. A remote device was used to close the breaker and all workers were clear of the safety ground area.
5. An uncontrolled hazardous energy source was discovered in a breaker panel because panel covers were installed in a configuration that allowed exposure to 208 volts. (See Occurrences Involving Discovery of Uncontrolled Hazardous Energy – Occurrence #1)

Monthly Occurrences Tables

Table 1 shows a breakdown of the outcomes, performance issues, and worker types associated with the electrical safety occurrences for June 2013.

Table 1 - Breakdown of Electrical Occurrences

Number of Occurrences (June)	Involving:	Last Month (May)
1	Electrical Shocks	3
0	Electrical Burns	0

Number of Occurrences (June)	Involving:	Last Month (May)
6	Hazardous Energy Control (LOTO)	9
1	Inadequate Job Planning	0
1	Inadvertent Drilling/Cutting of Electrical Conductors	1
0	Excavation of Electrical Conductors	0
0	Vehicle Intrusion of Electrical Conductors or Equipment	0
5	Electrical Near Misses	3
9	Electrical Workers	8
4	Non-Electrical Workers	9
3	Subcontractors	5

NOTE: The numbers in the left-hand column are not intended to total the number of occurrences for the month and are only associated with the items in the center column.

In compiling the monthly totals, the search looked for occurrence discovery dates in this month [excluding Significance Category R (Recurring) 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

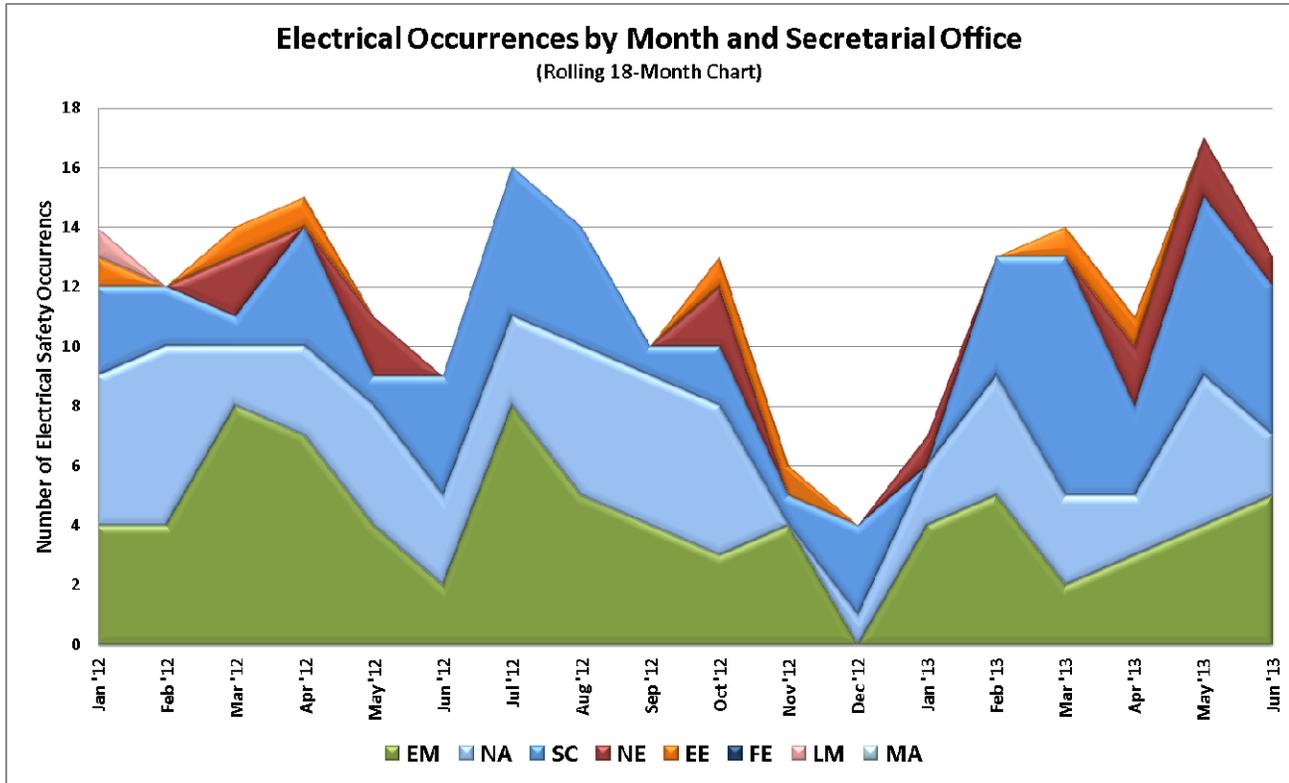
Table 2 provides a summary of the electrical safety occurrences for the previous 5 years and CY 2013. The average number of occurrences a year ago (June 2012) was also 12.5 per month and the number of shocks was at 12.

Table 2 - Summary of Electrical Occurrences

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
June	13	1	0	0
May	17	3	0	0
April	11	2	0	0
March	14	4	0	0
February	13	4	0	0
January	7	2	0	0
2013 total	75 (avg. 12.5/month)	16	0	0
2012 total	138 (avg. 11.5/month)	30	1	0
2011 total	136 (avg. 11.3/month)	36	5	0
2010 total	155 (avg. 12.9/month)	28	2	0
2009 total	128 (avg. 10.7/month)	25	3	0
2008 total	113 (avg. 9.4/month)	26	1	0

Figure 6 shows the distribution of electrical safety occurrences by Secretarial Office.

Figure 6 - Electrical Occurrences by Month and Secretarial Office



Electrical Severity

The electrical severity of an electrical occurrence is based on an evaluation of electrical factors that include: electrical hazard, environment, shock proximity, arc flash proximity, thermal proximity and any resulting injury(s) to affected personnel. Calculating an electrical severity for an occurrence provides a metric that can be consistently applied to evaluate electrical occurrences across the DOE complex.

Electrical Severity Scores

The electrical severity scores (ES) are calculated using the Electrical Severity Measurement Tool (http://www.efcog.org/bp/p/doc/bp48-Electrical_Severity_Measurement_Tool%20R3.pdf). The seventeen occurrences are classified as shown in Table 3. Actual scores are provided in Attachment 1.

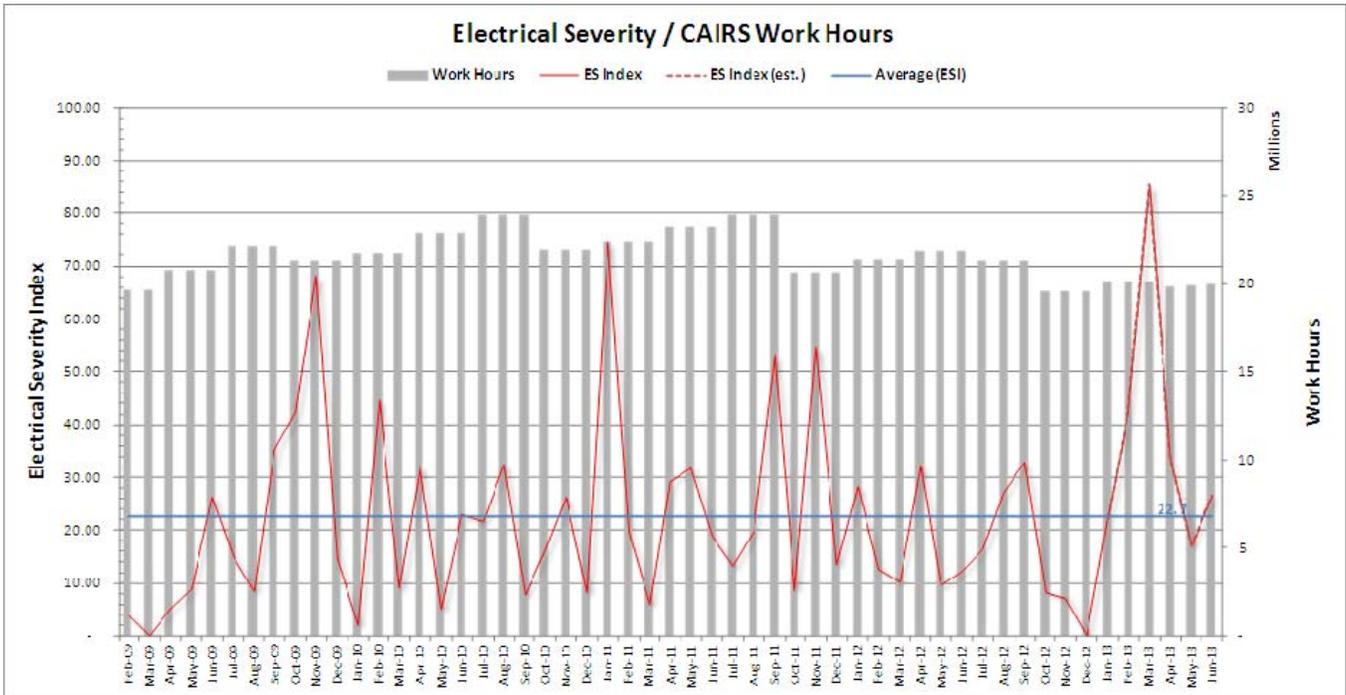
Table 3 – Classification of Electrical Safety Occurrences by ES Score

Occurrence Classification	Electrical Severity Score	Number of Occurrences
HIGH	≥ 1750	0
MEDIUM	31-1749	6
LOW	1-30	1
No Score	0	6

Electrical Severity Index

The Electrical Severity Index (ESI) is a performance metric that was developed to normalize events against organizational work hours. The ESI is calculated monthly and trended. Figure 7 shows a calculated ESI for the DOE complex and Table 4 shows the ESI.

Figure 7 - Electrical Severity Index Compared to Work Hours



Note: An estimated ESI is calculated until accurate CAIRS man-hours are available. The chart is updated monthly.

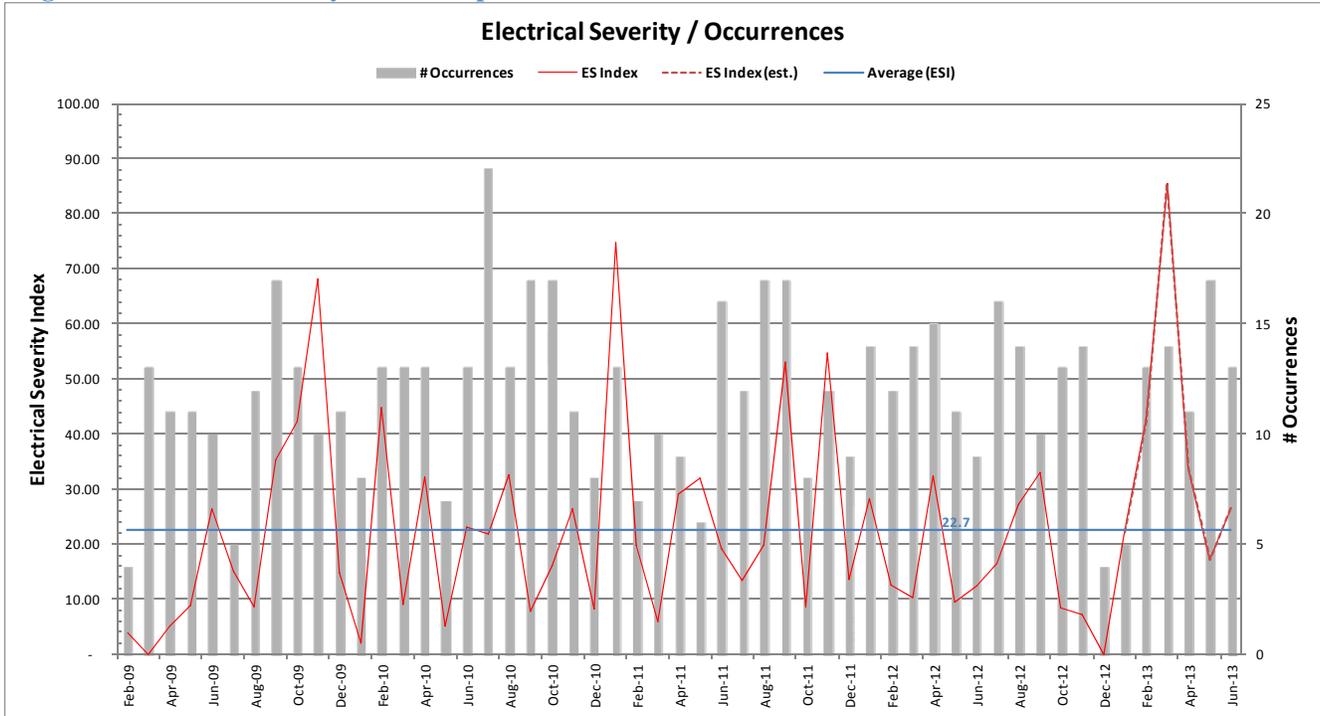
Table 4 - Electrical Severity Index

Category	May	June	Δ
Total Occurrences	17	13	-4
Total Electrical Severity	1,700	2,640	+940
Estimated Work Hours	19,855,705* (19,855,705)	19,911,170	+55,465
ES Index	17.12* (17.12)	26.52	+9.4
Average ESI	22.6	22.7	+0.1

* These are estimated CAIRS work hours for May and ES Index based on the estimated hours. The estimated hours and ES Index based on the estimated hours (as reported in May) are shown below in parentheses.
 Electrical Severity Index = $(\Sigma \text{Electrical Severity} / \Sigma \text{Work Hours}) 200,000$

Figure 8 shows the ESI with the number of Occurrences instead of Work Hours.

Figure 8 - Electrical Severity Index Compared to Number of Occurrences



The average ESI (22.7) has remained fairly steady over the last three months. The lowest average ESI was 19.2 in June 2010.

Figure 9 shows the number of days since the previous high severity occurrence. The present interval is 86 days as of June 30. The previous longest interval was 679 days ending March 12, 2013.

Figure 9 - Days since Previous High Severity Occurrence

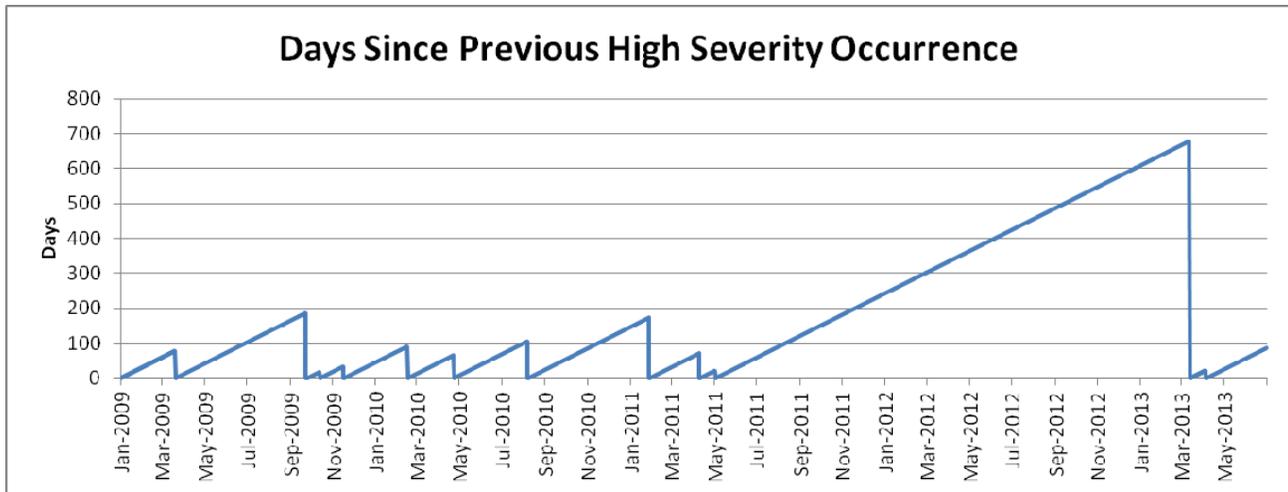
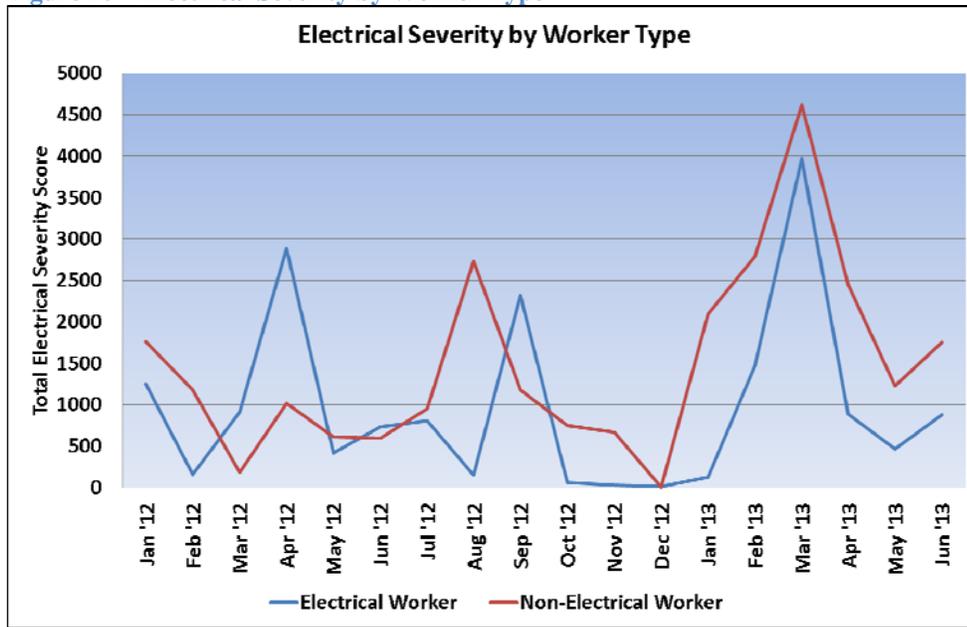


Figure 10 shows the total electrical severity score by worker type for each month.

Figure 10 – Electrical Severity by Worker Type



Following a peak in March 2013 for electrical workers and non-electrical workers, the total ES score for both groups decreased until June. The present ES score for electrical workers is 880 and 1,750 for non-electrical workers.

Summary of Occurrences by Severity Band

For the interval June 2012 through June 2013 (current month and the past 12), Figures 11 and 12 summarize occurrences by severity band and month of discovery date by percentage of total occurrences in month and number of occurrences in month.

Figure 11 - Occurrences by Electrical Severity Band (Percentage)

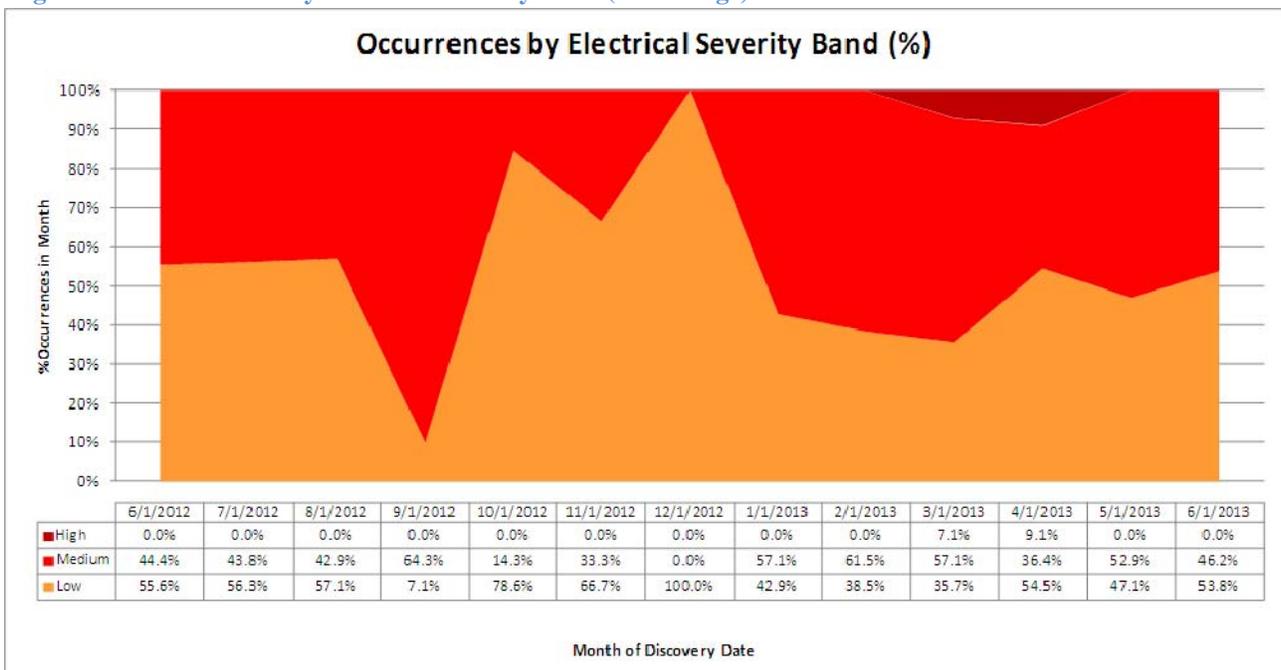
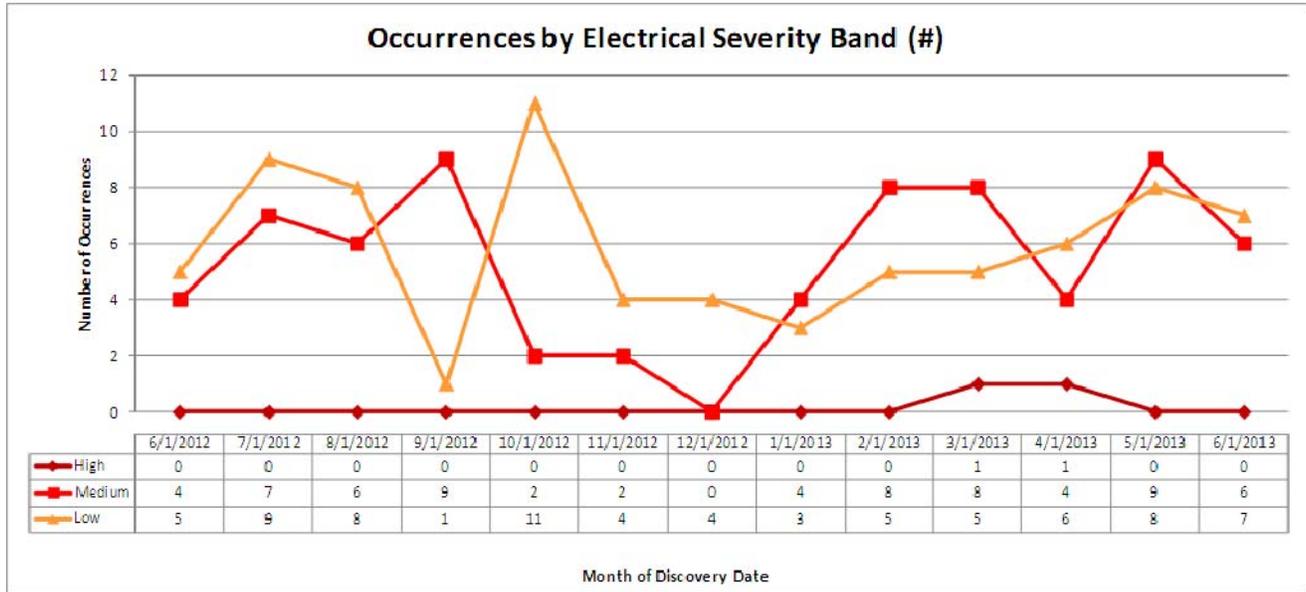


Figure 12 - Occurrences by Electrical Severity Band (Number)

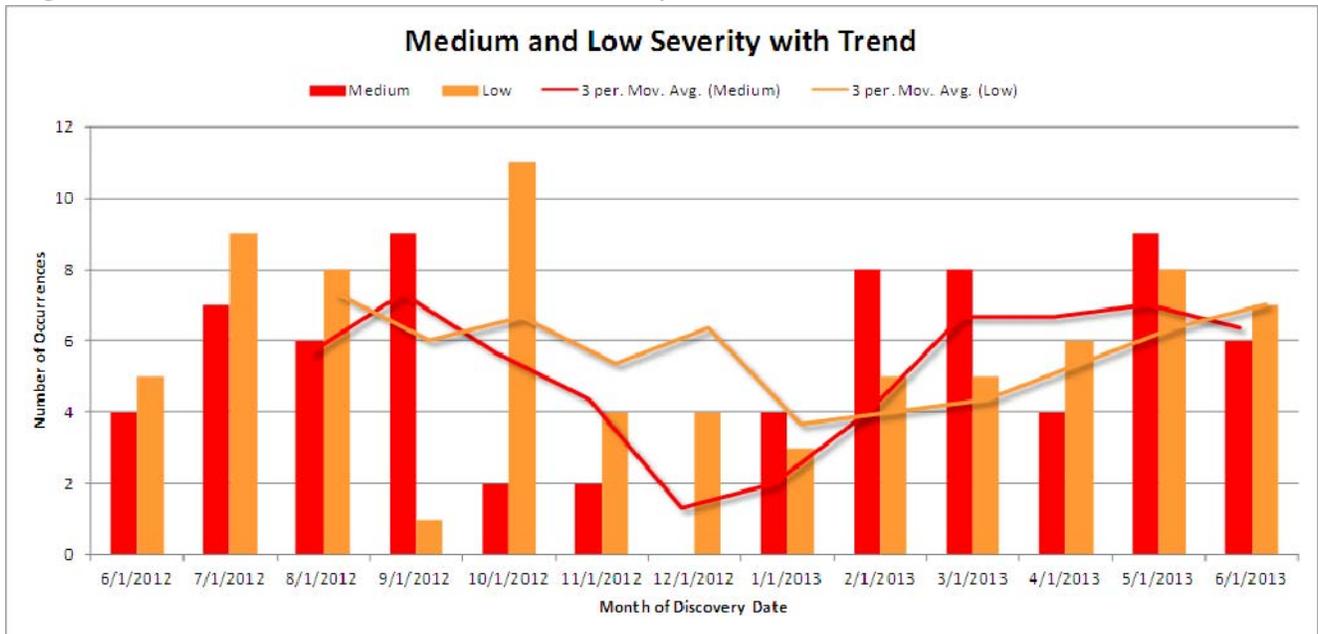


The previous two charts shows that a high electrical severity event occurred in March and in April, ending a 679-day period since the last occurrence in May 2011. The number of occurrences with Medium and Low or zero severity scores decreased.

Medium and Low Severity with Trend

Figure 13 focuses on the Medium and Low severity data series for June 2012 through June 2013. Trend lines are included for each, using a 3-month moving average.

Figure 13 - Trend of Medium and Low Electrical Severity Occurrences



The 3-month moving average shows a slightly increasing trend for Low and Medium severity occurrences.

Additional Resources

Electrical Safety Blog

<http://hsselectricalsafety.wordpress.com/>

EFCOG Electrical Safety Subgroup

http://www.efcog.org/wg/esh_es/index.htm

Electrical Safety Wiki

<http://electricalsafety.doe-hss.wikispaces.net/home>

Center of Excellence for Electrical Safety

<http://www.lanl.gov/safety/electrical/>

Contact

Glenn S. Searfoss

Office of Analysis, HS-24

Phone: 301-903-8085

Email: glenn.searfoss@hq.doe.gov

Electrical Safety Occurrences – June 2013

No	Report Number	Event Summary	SHOCK	BURN	ARCF ⁽¹⁾	LOTO ⁽²⁾	PLAN ⁽³⁾	EXCAV ⁽⁴⁾	CUT/D ⁽⁵⁾	VEH ⁽⁶⁾	SC ⁽⁷⁾	RC ⁽⁸⁾	ES ⁽⁹⁾
1	EM--PPPO-FBP-PORTSDD-2013-0019	A zero energy check found that electricians mistakenly confirmed a 13.8 kV switch position as open on a LOTO when it was closed.				X					3	2E(2)	0
2	EM-ID--CWI-IWTU-2013-0009	A wheeled lift table ran over and damaged an energized 120V power cord, tripping a GFCI.							X		3	2E(2)	110
3	EM-ID--CWI-LANDLORD-2013-0002	A system engineer removed a cover from an electrical control panel that contained 480V power without a LOTO in place.				X					4	2E(3)	0
4	EM-ID--CWI-LANDLORD-2013-0003	An operator received an electrical shock in his left hand while operating a 277V light switch.	X								3	10(2)	1650
5	EM-RL--CPRC-CSB-2013-0001	The Component Position field of a LOTO Tag was not filled in.				X					4	2E(3)	0
6	NA--PS-BWP-PANTEX-2013-0043	When technicians applied alligator clip leads for a voltmeter, one clip lead shorted phase to phase, blowing 480V line fuses.									4	10(2)	50
7	NA--SS-SNL-1000-2013-0007	A contractor did not wear PPE for operating a 480-volt disconnect and did not implement a LOTO.				X					4	2E(3)	20
8	NE-ID--BEA-STC-2013-0002	A subcontractor's fish tape touched a terminal on a 120V transformer causing a small arc.					X				3	10(2)	110
9	SC--BSO-LBL-OPERATIONS-2013-0012	A worker missed a procedure step and closed 12kV into a set of safety grounds, tripping a breaker.									3	10(2)	100
10	SC--FSO-FNAL-FERMILAB-2013-0006	A foreman violated the LOTO process by removing a LOTO lock key from a desk drawer without authorization.				X					4	2E(3)	0

Attachment 1

No	Report Number	Event Summary	SHOCK	BURN	ARCF ⁽¹⁾	LOTO ⁽²⁾	PLAN ⁽³⁾	EXCAV ⁽⁴⁾	CUT/D ⁽⁵⁾	VEH ⁽⁶⁾	SC ⁽⁷⁾	RC ⁽⁸⁾	ES ⁽⁹⁾
11	SC--PNSO-PNNL-PNNLBOPER-2013-0008	A worker left a key hanging from an authorized worker's lock located on a molded case breaker.				X					4	2E(3)	0
12	SC--PNSO-PNNL-PNNLNUCL-2013-0006	An uncontrolled energy source was discovered in a breaker panel because covers were installed that allowed exposure to 208V.									3	2E(2)	0
13	SC--PNSO-PNNL-PNNLNUCL-2013-0007	An open bottom panel in a switchgear places rooms below within the arc flash boundary.									3	2E(2)	600
	TOTAL		1	0	0	6	1	0	1	0			

Key

(1) ARCF = significant arc flash, (2) LOTO = lockout/tagout, (3) PLAN = job planning, (4) EXCAV = excavation/penetration, (5) CUT/D = cutting or drilling, (6) VEH = vehicle or equipment intrusion, (7) SC = ORPS significance category, (8) RC = ORPS reporting criteria, (9) ES = electrical severity

ES Scores: High is ≥ 1750 , Medium is 31-1749, and Low is 1-30

Electrical Safety Occurrences – June 2013

No	Report Number	Event Summary	EW ⁽¹⁾	N-EW ⁽²⁾	SUB ⁽³⁾	HFW ⁽⁴⁾	WFH ⁽⁵⁾	PPE ⁽⁶⁾	70E ⁽⁷⁾	VOLT ⁽⁸⁾		C/T ⁽⁹⁾	NEUT ⁽¹⁰⁾	NM ⁽¹¹⁾
										H	L			
1	EM--PPPO-FBP-PORTSDD-2013-0019	A zero energy check found that electricians mistakenly confirmed switch position as open on a LOTO when it was closed.	X							X				
2	EM-ID--CWI-IWTU-2013-0009	A wheeled lift table ran over and damaged an energized 120V power cord, tripping a GFCI.				X					X			X
3	EM-ID--CWI-LANDLORD-2013-0002	A system engineer removed a cover from an electrical control panel that contained 480V power without a LOTO in place.	X								X			
4	EM-ID--CWI-LANDLORD-2013-0003	An operator received an electrical shock in his left hand while operating a 277V light switch.	X	X		X					X			
5	EM-RL--CPRC-CSB-2013-0001	The Component Position field of a LOTO Tag was not filled in.	X								X			
6	NA--PS-BWP-PANTEX-2013-0043	When technicians applied alligator clip leads for a voltmeter, one clip lead shorted phase to phase, blowing 480V line fuses.	X			X					X			X
7	NA--SS-SNL-1000-2013-0007	A contractor did not wear PPE for operating a 480-volt disconnect and did not implement a LOTO.	X		X			X			X			
8	NE-ID--BEA-STC-2013-0002	A subcontractor's fish tape touched a terminal on a 120V transformer causing a small arc.	X		X	X					X			X
9	SC--BSO-LBL-OPERATIONS-2013-0012	A worker missed a procedure step and closed 12kV into a set of safety grounds, tripping a breaker.	X			X					X			X
10	SC--FSO-FNAL-FERMILAB-2013-0006	A foreman violated the LOTO process by removing a LOTO lock key from a desk drawer without authorization.		X	X						X			

Attachment 1

No	Report Number	Event Summary	EW ⁽¹⁾	N-EW ⁽²⁾	SUB ⁽³⁾	HFW ⁽⁴⁾	WFH ⁽⁵⁾	PPE ⁽⁶⁾	70E ⁽⁷⁾	VOLT ⁽⁸⁾		C/I ⁽⁹⁾	NEUT ⁽¹⁰⁾	NM ⁽¹¹⁾
										H	L			
11	SC--PNSO-PNNL-PNNLBOPER-2013-0008	A worker left a key hanging from an authorized worker's lock located on a molded case breaker.	X								X			
12	SC--PNSO-PNNL-PNNLNUCL-2013-0006	An uncontrolled energy source was discovered in a breaker panel because covers were installed that allowed exposure to 208V.	X			X					X			X
13	SC--PNSO-PNNL-PNNLNUCL-2013-0007	An open bottom panel in a switchgear places rooms below within the arc flash boundary.	X			X			X		X			
	TOTAL		9	4	3	5 X	8	1	1	2	11	0	0	5

Key

(1) EW = electrical worker, (2) N-EW = non-electrical worker, (3) SUB = subcontractor, (4) HFW = hazard found the worker, (5) WFH = worker found the hazard, (6) PPE = inadequate or no PPE used, (7) 70E = NFPA 70E issues, (8) VOLT = H (>600) L(≤600), (9) C/I = Capacitance/Inductance, (10) NEUT = neutral circuit, (11) NM = near miss

ORPS Operating Experience Report

Production GUI - New ORPS

ORPS contains 56204 OR(s) with 59514 occurrences(s) as of 7/11/2013 11:21:06 AM
 Query selected 13 OR(s) with 13 occurrences(s) as of 7/11/2013 2:35:54 PM

Download this report in Microsoft Word format. 

1)Report Number: [EM--PPPO-FBP-PORTSDD-2013-0019](#) **After 2003 Redesign**
Secretarial Office: Environmental Management
Lab/Site/Org: Portsmouth Gaseous Diffusion Plant
Facility Name: Portsmouth Decontamination and Decommissioning
Subject/Title: Zero Energy Check Identified Unexpected Voltage
Date/Time Discovered: 06/29/2013 10:45 (ETZ)
Date/Time Categorized: 06/29/2013 16:30 (ETZ)
Report Type: Update
Report Dates:

Notification	06/30/2013	05:57 (ETZ)
Initial Update	07/08/2013	17:59 (ETZ)
Latest Update	07/08/2013	17:59 (ETZ)
Final		

Significance Category: 3
Reporting Criteria: 2E(2) - Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). 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: 3) Develop and Implement Hazard Controls
 4) Perform Work Within Controls
Subcontractor Involved: No
Occurrence Description: Update Report

On June 29, 2013, an Electrician was performing a zero energy check in accordance with a hold point in the work control document and discovered power on one phase of Pole Switch # 55 for the F2 feeder. Work was immediately stopped and Power Operations was notified. The incident investigation revealed that Pole Switch # 56 was closed and not open as previously confirmed during implementation of the LOTO Permit. Power Operations then placed Pole Switch #56 in the proper (OPEN) position; LOTO was re-issued; and Electrical Maintenance satisfactorily completed the required SIV test.

The Lockout-Tagout Permit (Install Pole Switch # 55 on Pole # 449A) was prepared on June 27, 2013 and listed the devices to be tagged/locked and their required positions. On June 28, 2013 the system configuration was reviewed to determine which devices could be tagged/locked ahead of time. The configuration indicated Pole Switch # 56 was open, and the open position was visually verified in the field using concurrent verification. System Isolation Verification was also performed visually in accordance with the LOTO procedure and confirmed the open switch position. All steps of the LOTO procedure were followed; however, the three individuals mistakenly confirmed the switch position as open when it was actually closed. The error was identified during a zero energy check that was performed prior to work start and in accordance with a hold point within the work control document.

Of note, pole switches 55 through 57 were recently installed and differed from other site pole switches in the following manner: operational orientation - they operate horizontally rather than vertically; size – 1200 amp versus 600 amp; and arc mitigation – suppression canisters versus arc chute.

Cause Description:

Operating Conditions:

Normal Operations

Activity Category:

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

Immediate Action(s):

- Electrical Maintenance immediately stopped testing and notified Power Operations.
- A Problem Report was initiated.
- An Occurrence Report was initiated.
- A fact finding meeting was conducted and compensatory measure implemented regarding better documentation and positive indication of pole switch positions in Power Ops.

FM Evaluation:

An internal investigation and causal analysis will be performed. Corrective actions will be developed and tracked in the FBP internal database, the Integrated Tracking System (ITS).

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Yes.

Required:

Before Further Operation? No

By Whom: Greg Wilkett

By When:

Division or Project:

Site Maintenance, Infrastructure, D&D Projects

Plant Area:

Grid Map E-5

System/Building/Equipment: Pole Switch #56 Northeast X-333 Facility

Facility Function: Environmental Restoration Operations

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: Portsmouth Gaseous Diffusion Plant, X-333 Facility
 EM--PPPO-FBP-PORTSDD-2013-0019 - Inadequate Protection Under Lockout-Tagout, Position of Pole Switch Did Not Match Status on Permit - (Significance Category 4) On June 29, 2013, while performing the required System Isolation Verification (SIV) testing (zero energy check) for a Lockout-Tagout (LOTO) Permit #2013-530-033 (install pole Switch #55 on Pole #449A) issued to Electrical Maintenance (Switchyard), voltage was detected on a circuit that should have been de-energized. Electrical Maintenance immediately stopped testing and notified Power Operations. Investigation revealed Pole Switch #56, which should have been open, according to the LOTO Permit, was in fact in the closed position. Power Operations placed Pole Switch #56 in the proper open position, the LOTO was re-issued and Electrical Maintenance performed the required SIV test, with a satisfactory result of zero voltage.

Similar OR Report Number:

Facility Manager:

Name	Dennis Carr
Phone	(740) 897-3532
Title	Fluor-B&W/Portsmouth Site Project Director

Originator:

Name	Cade, Mark D.
Phone	(740) 897-4062
Title	SENIOR QUALITY ASSURANCE SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/29/2013	16:31 (ETZ)	Dennis Carr	PORTSFBP
06/29/2013	16:45 (ETZ)	Fred Hughes	PORTSFBP
06/29/2013	17:40 (ETZ)	Tony Takacs	DOEPORTS
06/29/2013	17:41 (ETZ)	Bill Murphie	DOELEXPP

Authorized Classifier(AC): Doug Fogel Date: 07/08/2013

2)Report Number: [EM-ID--CWI-IWTU-2013-0009](#) After 2003 Redesign

Attachment 2

Secretarial Office: Environmental Management
Lab/Site/Org: Idaho Cleanup Project
Facility Name: Integrated Waste Treatment Unit
Subject/Title: IWTU-Electrical Cord Damaged by Lift Table
Date/Time Discovered: 06/25/2013 10:00 (MTZ)
Date/Time Categorized: 06/25/2013 11:17 (MTZ)
Report Type: Notification

Report Dates:

Notification	06/27/2013	18:15 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category:

3

Reporting Criteria:

2E(2) - Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). 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

Subcontractor Involved:

No

Occurrence Description:

At 0930 hours on June 25, 2013, damage to an energized power cord occurred during the installation of the product handling vacuum filter (PHVF) transfer jet. Due to the size and weight of the transfer jet, an electrically powered lift table is required for installation. This lift table was recently modified to add wheels on the bottom specifically for this evolution. IWTU operations personnel were pushing the lift table, which contained the PHVF jet, into position when the IWTU shift supervisor (SS) noticed that one of the lift table wheels had contacted the energized power cord. The SS stopped the evolution and had operations personnel roll the lift table back to clear the power cord. When the lift table was rolled back, the wheel that contacted the power cord slid along with the power cord, damaging the power cord. The damage to the cord caused a small electrical arc and tripped the ground fault circuit breaker supplying the in-use electrical outlet.

At 1000 hours, the Integrated Waste Treatment Unit (IWTU) nuclear facility manager (NFM) was notified of the event.

At 1117 hours, the NFM categorized the ORPS reportability as a Group 2, Subgroup E, Sequence 2, Significance Category 3 per management control

procedure MCP-190, "Event Investigation and Occurrence Reporting."

Cause Description:

Operating Conditions:

Shut down due to ongoing maintenance activities

Activity Category:

Maintenance

Immediate Action(s):

1. A step back was initiated.
2. The power cord was unplugged and the lift table was tagged out of service.
3. Appropriate notifications were made.

FM Evaluation:

1. There were no personnel injuries.
2. The lift table is tagged out of service until the power cord can be repaired or replaced.
3. Actions will be taken to tie the power cord up out of the way the next time the lift table is used.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

No

Division or Project:

IWTU-Idaho Cleanup Project

Plant Area:

Rm. 109 116' level

System/Building/Equipment:

CPP-1696

Facility Function:

Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

- 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
- 01Q--Inadequate Conduct of Operations - Personnel error
- 07D--Electrical Systems - Electrical Wiring
- 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
- 12C--EH Categories - Electrical Safety
- 14L--Quality Assurance - No QA Deficiency

HQ Summary:

On June 25, 2013, operations personnel were pushing a wheeled lift table, which contained a product handling vacuum filter jet, into position when the shift supervisor noticed that one of the lift table wheels had hit an energized power cord. The supervisor stopped the evolution and had operations personnel roll the lift table back to clear the power cord. When the lift table was rolled back, the wheel that hit the power cord slid along with the cord and damaged it. The damage to the cord caused a small electrical arc and tripped the ground fault circuit breaker supplying the in-use electrical outlet. The power cord was unplugged and the lift table was tagged out of service. Appropriate notifications were made.

Similar OR Report Number:

Attachment 2

Facility Manager:

Name	SPELLS, JIMMY L.
Phone	(208) 533-3481
Title	FACILITY MANAGER

Originator:

Name	BOSLEY, JAMES B
Phone	(208) 351-5969
Title	STAFF ENGINEER - ISSUE MANAGEMENT CO

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/25/2013	11:21 (MTZ)	E. Balsmeier	CWI
06/25/2013	11:26 (MTZ)	W. Lloyd	CWI
06/25/2013	11:45 (MTZ)	C. Warren	DOE-ID

Authorized Classifier(AC): Jimmy L. Spells Date: 06/26/2013

3)Report Number:

[EM-ID--CWI-LANDLORD-2013-0002](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Idaho Cleanup Project

Facility Name:

ICP Landlord Activities

Subject/Title:

Deviation from Lockout / Tagout Process for Control Panel Access by System Engineer on Breathing Air Trailer

Date/Time Discovered:

06/11/2013 12:55 (MTZ)

Date/Time Categorized:

06/11/2013 14:50 (MTZ)

Report Type:

Notification/Final

Report Dates:

Notification	06/13/2013	18:55 (ETZ)
Initial Update	06/13/2013	18:55 (ETZ)
Latest Update	06/13/2013	18:55 (ETZ)
Final	06/13/2013	18:55 (ETZ)

Significance Category:

4

Reporting Criteria:

2E(3) - Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).

Cause Codes:

A3B2C02 - Human Performance Less Than Adequate (LTA); Rule Based Error; Signs to stop were ignored and step performed incorrectly
-->couplet - NA

ISM:

4) Perform Work Within Controls

Subcontractor Involved:

No

Occurrence Description: On the morning of Tuesday, June 11, 2013 an Idaho Nuclear Technology and Engineering Center (INTEC) System Engineer removed the cover from an electrical control panel that also contained 480 volt power. The electrical control panel was located inside a portable breathing air trailer. The System Engineer wanted to access the inside of the panel cover where he thought he might find a vendor supplied electrical schematic because some vendors post electrical schematics on the inside of their electrical panel covers.

Power to the trailer was isolated at the main disconnect switch mounted on the outside of the trailer. A work package had been written for the completion of preventive maintenance on the breathing air trailer and was ready for calibrations and post-maintenance testing. A Level I Lockout / Tagout (LOTO) was applied to the main disconnect to mitigate any air pressure hazard on the breathing air trailer. No work package or LOTO was in place to perform the removal of the electrical control panel cover. Upon realizing that access to the electrical control panel required a LOTO because it contained power relays, the System Engineer closed the panel and notified supervision.

At 15:00 on the day of the event INTEC management convened a fact finding meeting to establish the facts associated with the event. The fact finding meeting confirmed this was a failure to use the LOTO process as required.

The LOTO previously installed on the main disconnect was not intended to support electrical work. Therefore a zero energy check had not been performed and thus, the System Engineer was potentially exposed to hazardous electrical energy in violation of NFPA 70E. Subsequent to the fact finding, a zero energy check confirmed the System Engineer was not exposed to hazardous energy.

Cause Description:

Operating Conditions: Power was isolated to Breathing Air Trailer, COM-UTI-003. A LOTO was installed to support preventive maintenance.

Activity Category: Facility/System/Equipment Testing

Immediate Action(s): The System Engineer stopped his work associated with the electrical panel cover and notified line management.

In order to establish the facts associated with this event a fact finding meeting was scheduled and convened at 15:00 on the day of the event.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No
Division or Project: INTEC Engineering
Plant Area: CPP-663
System/Building/Equipment: INTEC / CPP-663 / Breathing Air Trailer COM-UTI-003
Facility Function: Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On June 11, 2013, an Idaho Nuclear Technology and Engineering Center system engineer removed a cover from an electrical control panel that contained 480-volt power without a lockout/tagout (LOTO) in place. The panel is inside a breathing air trailer and the system engineer wanted to access the inside of the panel cover where he thought he might find a vendor supplied electrical schematic. Power to the trailer was isolated at the main disconnect switch for completion of preventive maintenance on the breathing air trailer; however, there was no work package or LOTO in place to remove the electrical control panel cover. Upon realizing that access to the electrical control panel required a LOTO because it contained power relays, the system engineer closed the panel and notified supervision.

Similar OR Report Number:

Facility Manager:

Name	R. C. Williams
Phone	(208) 533-0431
Title	INTEC Design Authority Manager

Originator:

Name	SWANEY, GEORGE P
Phone	(208) 533-3328
Title	COMPLIANCE COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/11/2013	14:50 (MTZ)	C. R. Warren	DOE-ID

Authorized Classifier(AC): M. S. Casteel Date: 06/13/2013

4)Report Number: [EM-ID--CWI-LANDLORD-2013-0003](#) After 2003 Redesign
Secretarial Office: Environmental Management
Lab/Site/Org: Idaho Cleanup Project
Facility Name: ICP Landlord Activities
Subject/Title: Electrical Shock from Light Switch in CPP-659
Date/Time Discovered: 06/22/2013 18:20 (MTZ)
Date/Time Categorized: 06/22/2013 19:15 (MTZ)
Report Type: Update
Report Dates:

Notification	06/25/2013	18:51 (ETZ)
Initial Update	06/27/2013	13:28 (ETZ)
Latest Update	06/27/2013	13:28 (ETZ)
Final		

Significance Category: 2
Reporting Criteria: 2E(1) - Any unexpected or unintended personal contact (burn, injury, etc.) with an electrical hazardous energy source (e.g., live electrical power circuit, etc.).

Cause Codes:
ISM: 3) Develop and Implement Hazard Controls
 5) Provide Feedback and Continuous Improvement

Subcontractor Involved: No

Occurrence Description: On Saturday June 22, 2013 at approximately 18:00 an Idaho Nuclear Technology and Engineering Center (INTEC) Balance of Plant (BoP) Liquid Waste Operator experienced a electrical shock in his left hand while turning on a light switch during the process of checking conditions in the plenum room 503 at New Waste Calcining Facility (NWCF) in preparations for turnover to the night shift operator.

The BoP operator described the event as a "jolt." The operator then reported the incident to his supervisor. Shortly thereafter CPP-659 operators roped off the area of the light switch and posted warning signs.

On Sunday, June 23, 2013 a thorough investigation commenced and the results of the investigation are documented in the Evaluation section of this report.

Cause Description:
Operating Conditions: Normal Operating Conditions
Activity Category: Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s): The area was posted around the light switch to prevent entry.
 Results: Personnel are protected from potential hazardous energy.

Operations Management and Safety were notified at 19:00.
ORPS reportability was determined at 19:15.
DOE FR was notified at 19:25.
Results: The appropriate notifications and reportability were completed.

The operator was escorted by his Supervisor to Central Facilities Area (CFA) Medical for evaluation.
Results: The evaluation revealed no injury, the worker received no medical treatment and was released without restriction.

FM Evaluation:

The limitation for facility operations only applies to the specific light switch in CPP-659 Room 503.

On Sunday, June 23, 2013, an electrician performed meter checks on the switch, the door and other components for stray electrical potentials and grounds. The electrician found no stray potentials and stated that the door, switch box, and conduit measured as properly grounded. However, the electrician also stated that the switch itself was worn and operated sloppily. Further, the electrician stated he found the switch arm illumination off, but after wiggling the switch arm, the switch arm illuminated. The purpose of switch arm illumination is to assist operators in locating the switch in the dark.

On Monday, June 24, 2013, work orders were developed to support additional investigation and testing.

On Tuesday, June 25, 2013, an electrician performed additional electrical checks for stray electrical potentials. The testing included monitoring for electrical potentials between the suspect light switch and the door as the door was staged open in various positions between fully opened and closed. No stray voltage potentials were detected. The suspect light switch was removed and examined. The light switch arm was discovered to have been broken such that a small portion of the plastic switch arm came loose only after the light switch was disassembled. When the broken plastic piece was removed, a connection to the small indicator light mounted in the light switch lever arm was exposed. The fact that the light switch lever arm was broken was not detectable until the light switch was disassembled. This light switch and three other nearby light switches associated with the plenum were replaced. No deficiencies were detected in the other three light switches.

Based upon the investigation of the failed / defective switch, categorization of this event was reevaluated. It was determined the more appropriate reporting criterion is Group 2, Subgroup E, Sequence Number (1), Significance Category 2.

DOE Facility Representative

Attachment 2

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Idaho Cleanup Project

Plant Area: INTEC / CPP-659

System/Building/Equipment: CPP-659 / New Waste Calcining Facility / Room 503 Switch

Facility Function: Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock
12C--EH Categories - Electrical Safety
14L--Quality Assurance - No QA Deficiency

HQ Summary: On June 22, 2013, while turning on a light switch, a Balance of Plant Liquid Waste Operator experienced a possible electrical shock in his left hand. The operator was escorted by his supervisor to Central Facilities Area Medical for evaluation which resulted in no injury. An electrician performed meter checks on the switch, the door and other components and found no stray potentials. However, the electrician found that the switch itself was worn and operated sloppily and that the switch arm illumination was off, but after wiggling the switch arm, the switch arm illuminated. The investigation is continuing to determine the source of the possible electrical shock. The area was posted around the light switch to prevent entry.

Similar OR Report Number: 1. EM-ID--CWI-LANLORD-2011-0001
2. EM-ID--CWI-LANLORD-2008-0006

Facility Manager:

Name	T. R. Howard
Phone	(208) 569-7764
Title	Balance of Plant Facility Manager

Originator:

Name	LYONS, SAPRENA L.
Phone	(208) 351-9075
Title	BUSINESS OPERATIONS SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/22/2013	19:25 (MTZ)	C. R. Warren	DOE-ID

Authorized Classifier(AC): G. Newsome **Date:** 06/27/2013

5)Report Number: [EM-RL--CPRC-CSB-2013-0001](#) **After 2003 Redesign**
Secretarial Office: Environmental Management
Lab/Site/Org: Hanford Site
Facility Name: Canister Storage Building
Subject/Title: Missing Information in Component Position Field on Controlling Organization Lockout Tag
Date/Time Discovered: 06/12/2013 09:45 (PTZ)
Date/Time Categorized: 06/12/2013 13:55 (PTZ)
Report Type: Notification/Final

Report Dates:

Notification	06/14/2013	14:46 (ETZ)
Initial Update	06/14/2013	14:46 (ETZ)
Latest Update	06/14/2013	14:46 (ETZ)
Final	06/14/2013	14:46 (ETZ)

Significance Category: 4
Reporting Criteria: 2E(3) - Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).

Cause Codes:
ISM: 4) Perform Work Within Controls
Subcontractor Involved: No
Occurrence Description: During a walkdown of the lock and tag boundary for the annual inspection of the Container Storage Building (CSB) Support Area Heating and Ventilation equipment, the work team identified that the Component Position field of Tag #2 had not been filled in.

Categorization of the event was delayed due to the need to gather information during the critique to determine what had occurred for selection of the appropriate reporting category.

Cause Description:
Operating Conditions: Normal Operations, Scheduled Maintenance Activities
Activity Category: Maintenance
Immediate Action(s): Work was immediately stopped and management was notified. A critique was held.

FM Evaluation:
DOE Facility Representative Input:
DOE Program Manager Input:

Further Evaluation is Required: No
Division or Project: Decommissioning Waste Fuels & Remediation Services
Plant Area: 200E
System/Building/Equipment: 212H, Support Area HVAC equipment switchgear
Facility Function: Nuclear Waste Operations/Disposal
Corrective Action:
Lessons(s) Learned:
HQ Keywords: 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On June 12, 2013, during a walk-down of the lock and tag boundary for the annual inspection of the Container Storage Building Support Area Heating and Ventilation equipment, the work team identified that the Component Position field of Tag #2 had not been filled in. Work was immediately stopped and management was notified. A critique was held.

Similar OR Report Number:

Facility Manager:

Name	Garello, PR
Phone	(509) 373-2916
Title	Facility Manager

Originator:

Name	MILLWARD, GREG E
Phone	(509) 373-0784
Title	SENIOR ENGINEER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/12/2013	09:50 (PTZ)	PR Garello	CSB
06/12/2013	14:00 (PTZ)	LD Earley	DOE RL
06/12/2013	14:07 (PTZ)	ML Boyce	MSA EOC

Authorized Classifier(AC):

6)Report Number: [NA--PS-BWP-PANTEX-2013-0043](#) **After 2003 Redesign**
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Pantex Plant
Facility Name: Pantex Plant
Subject/Title: Short Phase to Phase Observed During Voltage Check

Attachment 2

Date/Time Discovered: 06/17/2013 13:00 (CTZ)

Date/Time Categorized: 06/17/2013 13:30 (CTZ)

Report Type: Notification/Final

Report Dates:

Notification	06/18/2013	13:48 (ETZ)
Initial Update	06/18/2013	13:48 (ETZ)
Latest Update	06/18/2013	13:48 (ETZ)
Final	06/18/2013	13:48 (ETZ)

Significance Category: 4

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 for that facility or other facilities or activities in the DOE complex.
The significance category assigned to the management concern should be based on an evaluation of the potential risks and impact on safe operations.
(1 of 4 criteria - This is a SC 4 occurrence)

Cause Codes:

ISM: 4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On Friday, 06/14/13, Instrument Technicians were evaluating an issue with the air handler and hood vents in a Zone 11 facility. The technicians suspected line voltage issues feeding the variable frequency drive (VFD). The incoming voltage was 480, 3-phase, and the technicians were using insulated alligator clip leads from a Fluke voltage meter to monitor the voltage. Level 2 personal protection equipment (PPE) was donned and the first clip was applied. As the second clip was being applied the clip lead shorted phase to phase. Line voltage fuses blew immediately. The technicians stopped work and notified their supervisor. The supervisor responded to the work site and evaluated the situation. All work was halted and OC was notified.

There were no injuries to personnel or damage to equipment or the environment as a result of this event.

Cause Description:

Operating Conditions: Normal

Activity Category: Maintenance

Immediate Action(s): Instrument Technician stopped work and made appropriate notifications.

A critique was conducted on Monday, 06/17/13, and the event was categorized as 10(2) SC 4, Management Concern

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Maintenance

Plant Area: Zone 11

System/Building/Equipment: Bldg. 11-51A

Facility Function: Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 07E--Electrical Systems - Electrical Equipment Failure
 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
 12C--EH Categories - Electrical Safety
 14L--Quality Assurance - No QA Deficiency

HQ Summary: On June 17, 2013, Instrument Technicians were evaluating an issue with the air handler and hood vents in a Zone 11 facility, the technicians suspected line voltage issues feeding the variable frequency drive. The incoming voltage was 480, 3-phase, and the technicians were using insulated alligator clip leads from a Fluke voltage meter to monitor the voltage. Level 2 personal protection equipment was donned and the first clip was applied, as the second clip was being applied the clip lead shorted phase to phase. Line voltage fuses blew immediately. The technicians stopped work and notified their supervisor. All work was halted. There were no injuries to personnel or damage to equipment or the environment as a result of this event.

Similar OR Report Number:

Facility Manager:

Name	Ronnie Payne
Phone	(806) 477-6364
Title	Plant Maintenance Department Manager

Originator:

Name	HALL, BEVERLY J
Phone	(806) 477-3222
Title	

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/17/2013	13:30 (CTZ)	Todd Ailes	B&W
06/17/2013	13:30 (CTZ)	Earl Burkholder	NPO

Authorized Classifier(AC): Stanley Stambaugh **Date:** 06/18/2013

7)Report Number: [NA--SS-SNL-1000-2013-0007](#) **After 2003 Redesign**
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Sandia National Laboratories - SS
Facility Name: SNL Division 1000
Subject/Title: Contractor Failure to Follow LOTO Procedure in 860/110
Date/Time Discovered: 06/17/2013 15:15 (MTZ)
Date/Time Categorized: 06/19/2013 12:15 (MTZ)
Report Type: Notification/Final

Report Dates:

Notification	06/21/2013	19:20 (ETZ)
Initial Update	06/21/2013	19:20 (ETZ)
Latest Update	06/21/2013	19:20 (ETZ)
Final	06/21/2013	19:20 (ETZ)

Significance Category: 4

Reporting Criteria: 2E(3) - Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).

Cause Codes:

ISM:

- 1) Define the Scope of Work
- 2) Analyze the Hazards
- 4) Perform Work Within Controls

Subcontractor Involved: Yes
 RUSSELLS TECHNICAL PRODUCTS

Occurrence Description: A Dept. 1521 employee observed a contractor not properly implementing PPE for operating a 480 V disconnect in Building 860 nor properly implementing LOTO for operations in Building 860. The contractor was operating a 480 V disconnect connected to the climatic chamber. The contractor was accessing the chamber controller cabinet, which had exposed 110 VAC circuitry. The contractor was onsite working on contract for the Climatic Lab, upgrading the controller on one of the chambers in the Building 860 high bay. The employee reported the observation to the employee's department manager, who then contacted the Org. 1520 ES&H coordinator. The coordinator called a work pause for any work requiring operation of the disconnect and entrance to the cabinet while the coordinator investigated the incident and consulted with Sandia LOTO and Electrical Safety SMEs. Because the ES&H SMEs were not available until 6/19/2013 to help determine categorization, and further investigation was needed later on that date; categorization was not complete until approximately 1215 on 6/19/2013. The immediate cause of the incident was lack of knowledge on the part of the contractor regarding SNL LOTO

requirements. During the critique, it was revealed that the Dept. 2728 personnel supporting the contractor did not properly lockout the disconnect during work in the climatic chamber cabinet nor perform zero energy verification when they left the area for a break. Also, the 2728 personnel did not provide an adequate enough barrier inside the climatic chamber cabinet to allow the contractor to reach a serial cable connector for connecting and disconnecting. The barrier allowed the contractor's fingers to be within the Limited Approach Boundary of the 110 VAC circuitry (the boundary for this voltage is 3.5 ft).

Cause Description:

Operating Conditions:

Normal

Activity Category:

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

Immediate Action(s):

Stand down all activities concerning that disconnect and access to the controller cabinet.

FM Evaluation:

The event had an electrical severity of 20, as follows: Electrical Hazard Factor 10 (120 VAC single phase, low energy circuit); Environment Factor 0 (dry); Shock Proximity Factor 1 (Inside the limited approach Boundary); Arc Flash Proximity Factor 0 (no arc flash hazard). No PPE mitigations; Injury Factor 1 (no injury).

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

No

Division or Project:

1000/Upgrade of Climatic Chamber Controller

Plant Area:

Tech Area I

System/Building/Equipment:

Russells Altitude chamber/Bldg 860/110/Near Chamber EC-164

Facility Function:

Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
 11G--Other - Subcontractor
 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
 14E--Quality Assurance - Work Process Deficiency
 14G--Quality Assurance - Procurement Deficiency

HQ Summary:

On June 17, 2013, a contractor did not properly implement personal protective equipment for operating a 480-volt disconnect in Building 860 nor properly implement a lockout/tagout for operations in Building 860. The contractor was accessing a climatic chamber controller cabinet that

had exposed 110-VAC circuitry. A stand down was initiated regarding all activities concerning that disconnect and access to the controller cabinet.

Similar OR Report Number:

Facility Manager:

Name	Janise Baldo-Pulaski
Phone	(505) 845-9531
Title	1520 ES&H Coordinator

Originator:

Name	ROGERS, JESSICA
Phone	(505) 845-4727
Title	OCCURRENCE REPORTING ADMINISTRATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Authorized Classifier(AC): David Epp Date: 06/19/2013

8)Report Number:

[NE-ID--BEA-STC-2013-0002](#) After 2003 Redesign

Secretarial Office:

Nuclear Energy, Science and Technology

Lab/Site/Org:

Idaho National Laboratory

Facility Name:

Science and Technology Campus

Subject/Title:

Unintentional Contact With Energized 120V Transformer Results in no Shock or Injury

Date/Time Discovered:

06/05/2013 14:00 (MTZ)

Date/Time Categorized:

06/06/2013 11:00 (MTZ)

Report Type:

Notification

Report Dates:

Notification	06/10/2013	17:07 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category:

3

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 for that facility or other facilities or activities in the DOE complex.
 The significance category assigned to the management concern should be based on an evaluation of the potential risks and impact on safe operations.
 (1 of 4 criteria - This is a SC 3 occurrence)

Attachment 2

Cause Codes:

ISM:

Subcontractor Involved: Yes

Wheeler Electric

Occurrence Description: On 6/5/13, at approximately 2:00 pm, a subcontractor was using a fish tape to assist in pushing wires through conduit to support an upgrade to the HVAC control system in EROB (IF-654). The conduit is located inside and at the top of a 120V Control Transformer which was operating (energized) at the time the wires were being placed. The transformer was covered with a voltage rated vinyl insulation barrier to protect the workers and the equipment during this activity. While pushing the fish tape, the insulation barrier shifted downward allowing the fish tape to contact a terminal on the transformer causing a small arc. There were no injuries to personnel. This event was categorized as 10(2c) - 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 for that facility or other facilities or activities in the DOE complex.

The significance category assigned to the management concern should be based on an evaluation of the potential risks and impact on safe operations. (1 of 4 criteria - This is a SC 3 occurrence.

A pre-job briefing was held at 1300 hrs to discuss work activity, hazards and mitigations. Electricians performed a visual inspection of the vinyl barrier that had been placed over the panel about 2 weeks prior to this work activity. Barrier was determined to be properly placed and conditions allowed work to begin. The electricians began trying to pull control cables for the ATS Inland project through the conduit from a junction box towards the panel. The string they were using broke so they attached a "fish tape" to the cables and again tried to pull the cables through. They were unsuccessful in pulling from that side and decided to try to push the tape from the panel through to the junction box at 1345 hrs. They got the tape through to the last 90 degree turn and had to apply a little more pressure to the tape to get it through that last 90 degree turn. They were pushing from a slight angle to be able to put the tape on the left (outer side) of the transformer which was underneath the vinyl barrier. The vinyl barrier slipped and allowed the tape to contact an electrical source which caused a fuse to blow. The electrician stated there was a slight spark and once that occurred work was stop. The electricians replaced the fuse so the HVAC system would begin working again and placed the system in a safe configuration.

The electrician notified his supervisor who notified the EROB Building manager at 1358 hrs. The construction facility representatives and REC management were notified at 1410. REC Management notified DOE-ID at

Attachment 2

1445. Initial categorization was not determined until after the critique was held and more information had been gathered.

Cause Description:

Operating Conditions:

Normal

Activity Category:

Maintenance

Immediate Action(s):

Work was stopped, notifications were made, and the system was placed in an operable and safe condition.

Management and DOE were notified.

Critique was scheduled and completed and based on the categorization and information obtained: 1) a Level II Cause Analysis will be performed; 2) REC work control documents will be reviewed to ensure scope is bound; and 3) REC will discuss expectations concerning work control with staff.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Yes.

Required:

Before Further Operation? No

By Whom: Cause Analyst

By When:

Division or Project:

Research and Education Campus (REC)

Plant Area:

REC

System/Building/Equipment: IF-654 (EROB)

Facility Function:

Balance-of-Plant - Site/outside utilities

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)

08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)

11G--Other - Subcontractor

12C--EH Categories - Electrical Safety

14E--Quality Assurance - Work Process Deficiency

14G--Quality Assurance - Procurement Deficiency

HQ Summary:

On June 5, 2013, a subcontractor was using a fish tape to assist in pushing wires through conduit to support an upgrade to the HVAC control system in EROB (IF-654) when the tape touched a terminal on a transformer causing a small arc. The conduit is located inside and at the top of a 120-volt control transformer which was energized at the time the wires were being placed. The transformer was covered with a voltage rated vinyl insulation barrier to protect the workers and the equipment during this

activity. Work was stopped, notifications were made, and the system was placed in an operable and safe condition. There were no injuries to personnel. A critique was conducted.

Similar OR Report Number:

Facility Manager:

Name	LINDBERG, STEVEN
Phone	(208) 526-4007
Title	RESEARCH AND EDUCATION CAMPUS (REC)

Originator:

Name	KIBBEE, JOY D.
Phone	(208) 533-7382
Title	PERFORMANCE ASSURANCE COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/05/2013	14:10 (MTZ)	Beth Streeper	J600
06/05/2013	14:45 (MTZ)	R. Steve Karns	DOE-ID
06/06/2013	11:00 (MTZ)	R. Steve Karns	DOE-ID

Authorized Classifier(AC): Jeffrey Garner Date: 06/06/2013

9)Report Number:

[SC--BSO-LBL-OPERATIONS-2013-0012](#) After 2003 Redesign

Secretarial Office:

Science

Lab/Site/Org:

Lawrence Berkeley National Laboratory

Facility Name:

Operations Division

Subject/Title:

High Voltage Switching Procedure Deviation at GPL - No Exposures, No Injuries

Date/Time Discovered:

06/08/2013 14:45 (PTZ)

Date/Time Categorized:

06/09/2013 08:02 (PTZ)

Report Type:

Update

Report Dates:

Notification	06/11/2013	15:48 (ETZ)
Initial Update	06/14/2013	19:19 (ETZ)
Latest Update	06/14/2013	19:19 (ETZ)
Final		

Significance Category:

3

Reporting Criteria:

2E(3) - Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).

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 for that facility or other facilities or activities in the DOE complex.

The significance category assigned to the management concern should be based on an evaluation of the potential risks and impact on safe operations. (1 of 4 criteria - This is a SC 3 occurrence)

Cause Codes:

ISM:

4) Perform Work Within Controls

Subcontractor Involved:

No

Occurrence Description:

On 06/08/2013 at around 1445 hours, while energizing the newly constructed GPL (General Purpose Laboratory) building, an LBNL employee missed a step in the switch tag procedure and closed 12kV into a set of safety grounds. Facilities personnel had grounded Switch ADF-16-16 at the Building 16 Pad, but when they attempted to re-energize B33, they failed to remove the safety ground in Building 16, thereby tripping breaker A407, causing a power sag throughout the Lab.

All safety precautions worked as designed so there were no exposure nor injuries. All workers were clear of the safety ground area and a remote device was used to close the breaker. Facilities is assessing the extent of damage.

Cause Description:

Operating Conditions:

Indoors, lighted, dry

Activity Category:

Construction

Immediate Action(s):

- Facilities personnel stopped work immediately and discussed the misstep.

- After the work stoppage, the PMTs (Plant Maintenance Technicians) completed the task of energizing the GPL building.

FM Evaluation:

- The GPL was energized at 1946 hours on 06/08/2013.

- The power sag caused ALS (Advanced Light Source) and other systems to drop off.

- Facilities management has chartered a team to conduct root cause analysis of the event.

6/14/2013 UPDATE:

Facilities management determined that in addition to reporting the event as an SC3 Management Concern, the occurrence is also reportable under 2E(3), SC4. This update is submitted to add the additional reporting criterion.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: Yes.
Before Further Operation? No
By Whom: *Facilities
By When:

Division or Project: Facilities Division

Plant Area: B33

System/Building/Equipment: Building 33 General Purpose Laboratory (GPL)

Facility Function: Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance
07C--Electrical Systems - Power Outage
08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
12C--EH Categories - Electrical Safety
14E--Quality Assurance - Work Process Deficiency

HQ Summary: On June 8, 2013, an LBNL employee missed a step in the switch tag procedure and closed 12kV into a set of safety grounds while energizing the newly constructed GPL (General Purpose Laboratory) building. Facilities personnel had grounded Switch ADF-16-16 at the Building 16 Pad, but when they attempted to re-energize Building 33, they failed to remove the safety ground in Building 16, thereby tripping breaker A407, causing a power sag throughout the Laboratory. All safety precautions worked as designed so there was no personnel exposure or injury. A remote device was used to close the breaker and all workers were clear of the safety ground area. Facilities personnel are assessing the extent of damage.

Similar OR Report Number:

Facility Manager:

Name	Jennifer Ridgeway
Phone	(510) 486-6339
Title	Division Director

Originator:

Name	MOU, FLORENCE P.
Phone	(510) 486-7872
Title	SENIOR ADMINISTRATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/09/2013	08:06 (PTZ)	Kevin Hartnett	BSO
06/09/2013	08:06 (PTZ)	Mary Gross	BSO

Authorized Classifier(AC):

10)Report Number:

[SC--FSO-FNAL-FERMILAB-2013-0006](#) After 2003 Redesign

Secretarial Office:

Science

Lab/Site/Org:

FERMI National Accelerator Laboratory

Facility Name:

FERMI National Accelerator Lab.(BOP)

Subject/Title:

Lockout/Tagout Process Violation involving Subcontractor Working in Accelerator Enclosure

Date/Time Discovered:

06/26/2013 12:00 (CTZ)

Date/Time Categorized:

07/01/2013 13:00 (CTZ)

Report Type:

Notification/Final

Report Dates:

Notification	07/03/2013	13:59 (ETZ)
Initial Update	07/03/2013	13:59 (ETZ)
Latest Update	07/03/2013	13:59 (ETZ)
Final	07/03/2013	13:59 (ETZ)
Revision 1	07/10/2013	11:04 (ETZ)

Significance Category:

4

Reporting Criteria:

2E(3) - Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).

Cause Codes:

A3B4C02 - Human Performance Less Than Adequate (LTA); Work Practices LTA; Deliberate violation
-->couplet - NA

ISM:

4) Perform Work Within Controls

Subcontractor Involved:

Yes
IWS Inc.

Occurrence Description:

On Tuesday, June 25, 2013, an injection sealing subcontractor provided two of their employees, a foreman and an assistant, to perform contracted work in the F-Sector Enclosure. The foreman informed the Accelerator Division (AD) Task Manager that he needed a lock and tag for his co-worker to place on the Main Control Room (MCR) lockbox. The Task Manager directed the foreman to contact the AD employee with whom the foreman had entered the enclosure with on Monday. The foreman went to the AD employee's office, but the AD employee was not there at the time.

Attachment 2

The foreman knew that the AD employee had left his LOTO lock on the MCR lockbox after the prior day's access, so rather than asking someone else for a lock and tag, the foreman found and took the LOTO lock key from the AD employee's desk drawer and gave it to his assistant. The foreman then crossed the AD employee's name off the LOTO tag that accompanied the lock on the MCR lockbox and replaced it with the name of the assistant who was now in possession of the key. All of this was done without the input or knowledge of the AD employee. This is a clear violation of the LOTO process. On Wednesday, June 26, the AD employee discovered his key was missing from his desk and reported it to the Task Manager. After discussions between the Task Manager, the AD employee and the subcontractor foreman, it was determined that the subcontractor foreman had taken the AD employee's key and transferred it to his assistant. The Task Manager informed the subcontractor foreman that it was not permitted to take control of another individual's LOTO lock and key. Since the AD employee had not re-entered F-Sector since June 24, he had not been at risk due to the unauthorized use of his lock and key. The AD employee, who returned to work after a four-day weekend, and the Task Manager contacted their supervisor about the unauthorized transfer of the lock and key on July 1. The Task Manager was reminded of the importance of communicating significant occurrences up the management chain.

Cause Description: The foreman deliberately opened the desk drawer of an AD employee, removed a key, and used that key to transfer control of a LOTO lock from the AD employee to a subcontractor.

Operating Conditions: Normal

Activity Category: Maintenance

Immediate Action(s): On July 1, a meeting was held with the subcontractor foreman to discuss the events of the prior week. At the conclusion of the meeting the subcontractor foreman was informed by the AD Deputy Division Head that the foreman's site access ID would be terminated. The foreman was then directed to gather his tools and leave the site.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Accelerator Division/Infrastructure Repairs

Plant Area: Main Control Room

System/Building/Equipment: MCR F-Sector Group Lockbox

Facility Function: Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

Corrective Action 01:

Target Completion Date: 07/01/2013	Actual Completion Date: 07/01/2013
---	---

AD Management to conduct an incident review that includes a meeting with the IWS Inc. foreman.

Corrective Action 02:

Target Completion Date: 07/01/2013	Actual Completion Date: 07/01/2013
---	---

Fermilab to initiate the process of terminating the subcontractor foreman's site access ID.

Corrective Action 03:

Target Completion Date: 07/03/2013	Actual Completion Date: 07/02/2013
---	---

Fermilab Subcontractor Orientation Trainers will incorporate this event as a lessons learned in future classes.

Corrective Action 04:

Target Completion Date: 07/05/2013	Actual Completion Date: 07/09/2013
---	---

Require LOTO retraining of IWS Inc. Employees working at Fermilab.

Lessons(s) Learned:

HQ Keywords:

- 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
- 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
- 01P--Inadequate Conduct of Operations - Inadequate Oral Communication
- 01T--Inadequate Conduct of Operations - Willful Violation
- 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
- 11G--Other - Subcontractor
- 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
- 14E--Quality Assurance - Work Process Deficiency
- 14G--Quality Assurance - Procurement Deficiency

HQ Summary:

On June 25, 2013, in preparation to perform work in the F-Sector Enclosure, an injection sealing subcontractor foreman violated the lockout/tagout (LOTO) process when he removed a LOTO lock key from an Accelerator Division (AD) employee's desk drawer and gave it to his assistant without the AD employee's knowledge. The foreman went to the AD employee's office, but the AD employee was not there at the time. The foreman knew that the AD employee had left his LOTO lock on the MCR lockbox after the prior day's access and took the LOTO lock key from the AD employee's desk drawer and gave it to his assistant. The foreman then crossed the AD employee's name off the LOTO tag that accompanied the lock on the MCR lockbox and replaced it with the name of the assistant. On July 1, the AD Deputy Division Head terminated the foreman's site access ID and was directed to leave the site.

Similar OR Report Number: 1. None found.

Attachment 2

Facility Manager:

Name	Jack Anderson
Phone	(630) 840-3930
Title	Chief Operating Officer

Originator:

Name	BAIRD, DAVID I.
Phone	(630) 840-3945
Title	ESH SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/01/2013	09:30 (CTZ)	Paul Czarapata	AD-DH
07/01/2013	10:30 (CTZ)	Roger Dixon	AD-Head
07/01/2013	11:00 (CTZ)	Martha Michels	ESH&Q SH
07/01/2013	11:15 (CTZ)	Jack Anderson	FNAL-COO
07/01/2013	13:00 (CTZ)	John Scott	DOE-FSO
07/01/2013	13:00 (CTZ)	Michael Weis	DOE-FSO
07/01/2013	13:00 (CTZ)	Mark Bollinger	DOE-FSO

Authorized Classifier(AC):

11)Report Number: [SC--PNSO-PNNL-PNNLBOPER-2013-0008](#) After 2003 Redesign

Secretarial Office: Science

Lab/Site/Org: Pacific Northwest National Laboratory

Facility Name: Energy Research Programs (PNNL)

Subject/Title: Failure to Follow Prescribed Hazardous Energy Control Process

Date/Time Discovered: 06/10/2013 21:50 (PTZ)

Date/Time Categorized: 06/12/2013 14:41 (PTZ)

Report Type: Notification/Final

Report Dates:

Notification	06/14/2013	15:24 (ETZ)
Initial Update	06/14/2013	15:24 (ETZ)
Latest Update	06/14/2013	15:24 (ETZ)
Final	06/14/2013	15:24 (ETZ)

Significance Category: 4

Reporting Criteria: 2E(3) - Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).

Cause Codes:

Attachment 2

ISM: 4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On Monday, June 10, 2013, at approximately 2150 hrs., during routine rounds, a PNNL Power Operator observed a key hanging from an authorized worker's lock located on a molded case breaker in the EMSL main electrical room. A lockout hasp was utilized to facilitate the lock and tag, since a total of four locks and tags were to be hung (one Controlling Organization and three Authorized Worker locks and tags). The failure of the worker to control his key represents a failure to follow PNNL's hazardous energy control program.

Cause Description:

Operating Conditions: Indoors/dry.

Activity Category: Construction

Immediate Action(s): The Power Operator informed Building Management. Discussions were held and work was paused until the affected authorized worker lock and key were removed. The incident was initially categorized as non-reportable on Monday, June 10, 2013 at 2343 hrs. A management review was held at 0830 hours on June 12, 2013. After further consideration of the event and reporting criteria, the categorization was upgraded to reportable under criteria 2E(3), SC-4.

FM Evaluation:

DOE Facility Representative Input:

DOE Program Manager Input:

Further Evaluation is Required: No

Division or Project: Operational Systems Directorate

Plant Area: RCHN Area

System/Building/Equipment: EMSL / Room 1844

Facility Function: Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
14E--Quality Assurance - Work Process Deficiency

HQ Summary: On June 10, 2013, during routine rounds, a Pacific Northwest National Laboratory (PNNL) Power Operator observed a key hanging from an authorized worker's lock located on a molded case breaker in the Environmental Molecular Sciences Laboratory main electrical room. A

lockout hasp was utilized to facilitate the lock and tag, since a total of four locks and tags were to be hung (one Controlling Organization and three Authorized Worker locks and tags). The failure of the worker to control his key represents a failure to follow PNNL's hazardous energy control program. Management was notified and work was paused until the affected authorized worker lock and key were removed.

Similar OR Report Number:

Facility Manager:

Name	Cunningham, J. A.
Phone	(509) 371-7948
Title	Manager, Project Management

Originator:

Name	Pollari, Roger Allen
Phone	(509) 371-7700
Title	EVENT REPORTING PROGRAM MANAGER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/12/2013	14:45 (PTZ)	Carlson, J. L.	PNSO

Authorized Classifier(AC): Pollari, R. A. Date: 06/14/2013

12)Report Number: [SC--PNSO-PNNL-PNNLNUCL-2013-0006](#) After 2003 Redesign

Secretarial Office: Science

Lab/Site/Org: Pacific Northwest National Laboratory

Facility Name: PNNL Nuclear Facilities

Subject/Title: Exposed Electrical Conductor Discovered in Panel at RPL/Room 23B

Date/Time Discovered: 06/20/2013 14:40 (PTZ)

Date/Time Categorized: 06/20/2013 15:30 (PTZ)

Report Type: Notification

Report Dates:

Notification	06/24/2013	17:05 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3

Reporting Criteria: 2E(2) - Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). This criterion does not include discoveries made by zero-energy checks and other

Attachment 2

precautionary investigations made before work is authorized to begin.

Cause Codes:

ISM: 6) N/A (Not applicable to ISM Core Functions as determined by management review.)

Subcontractor Involved: No

Occurrence Description: At 1440 hrs., on June 20, 2013, an uncontrolled hazardous energy source was discovered in a breaker panel in RPL/Room 23B. The condition was a result of two empty breaker spaces in the panel with covers installed in a configuration that allowed exposure to hazardous electrical energy (208 volts).

Cause Description:

Operating Conditions: N/A

Activity Category: Inspection/Monitoring

Immediate Action(s): Access to room 23B was immediately restricted. A critique will be scheduled.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: Yes.
Before Further Operation? No
By Whom:
By When:

Division or Project: Nuclear & Operations Div/ Operational Systems Dir

Plant Area: 300 Area

System/Building/Equipment: RPL Facility (325)

Facility Function: Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation
08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
12C--EH Categories - Electrical Safety
14E--Quality Assurance - Work Process Deficiency

HQ Summary: On June 20, 2013, an uncontrolled hazardous energy source was discovered in a breaker panel in RPL/Room 23B. The condition was a result of two empty breaker spaces in the panel with covers installed in a configuration that allowed exposure to 208 volts of hazardous electrical energy. Access to the room was immediately restricted.

Similar OR Report Number:

Attachment 2

Facility Manager:

Name	Kerschner, H. F.
Phone	(509) 375-5345
Title	Manager, Radiochemical Processing Laboratory

Originator:

Name	Pollari, Roger Allen
Phone	(509) 371-7700
Title	EVENT REPORTING PROGRAM MANAGER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/20/2013	15:35 (PTZ)	Davies, T.H.	PNSO

Authorized Classifier(AC): Pollari, R.A. Date: 06/24/2013

13)Report Number: [SC--PNSO-PNNL-PNNLNUCL-2013-0007](#) After 2003 Redesign
Secretarial Office: Science
Lab/Site/Org: Pacific Northwest National Laboratory
Facility Name: PNNL Nuclear Facilities
Subject/Title: Uncontrolled Electrical Energy Source Discovered at the Radiochemical Processing Laboratory (RPL)
Date/Time Discovered: 06/24/2013 08:30 (PTZ)
Date/Time Categorized: 06/24/2013 09:45 (PTZ)
Report Type: Notification
Report Dates:

Notification	06/26/2013	14:33 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3
Reporting Criteria: 2E(2) - Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). 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: Monday morning, June 24, 2013, at approximately 0830 hrs., RPL building management and electrical subject matter experts determined that an uncontrolled electrical energy source exists under the main electrical

Attachment 2

switchgear in room 904. A small section of the switchgear bottom panel is open to the interstitial ceiling space below, which places several rooms below room 904 within the initial estimated arc flash boundary for the incoming electrical feed to RPL.

Cause Description:

Operating Conditions:

Indoor/dry

Activity Category:

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

Immediate Action(s):

Access to the rooms below 904 within the arc flash boundary has been restricted. Notifications were made. A critique was scheduled for Wednesday, June 26, 2013.

FM Evaluation:

Results of the Electrical Severity calculation using Electrical Severity Measurement Tool (ESMT):

$$(EHF)*[(1+EF+SPF+AFPF+TPF)*IF]=ES$$

EHF (Electrical Hazard Factor) = 50

EF (Environmental Factor) = 0

SPF (Shock Proximity Factor) = 1

AFPF (Arc Flash Proximity Factor) = 10

TPF (Thermal Proximity Factor) = 0

IF (Injury Factor) = 1

$$(50)*[(1+0+1+10+0)*1] = 600 \text{ High Severity}$$

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.

Before Further Operation? No

By Whom:

By When:

Division or Project:

Nuclear & Operations Div/ Operational Systems Dir

Plant Area:

300 Area

System/Building/Equipment: RPL Facility (325 Bldg)

Facility Function:

Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation

07B--Electrical Systems - Electrical Distribution

08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance

12C--EH Categories - Electrical Safety

14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On June 24, 2013, Radiochemical Processing Laboratory (RPL) building

management and electrical subject matter experts determined that an uncontrolled electrical energy source exists under the main electrical switchgear in Room 904. A small section of the switchgear bottom panel is open to the interstitial ceiling space below, which places several rooms below Room 904 within the initial estimated arc flash boundary for the incoming electrical feed to RPL. Access to the rooms below 904 within the arc flash boundary has been restricted.

Similar OR Report Number: 1. None

Facility Manager:

Name	Kerschner, H. F.
Phone	(509) 375-5345
Title	Manager, Radiochemical Processing Laboratory

Originator:

Name	GOUGE, PENNY J.
Phone	(509) 375-2788
Title	QUALITY & ASSURANCE SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
06/24/2013	10:00 (PTZ)	Davies, T. H.	PNSO

Authorized Classifier(AC): Pollari, R. A. Date: 06/26/2013

| [ORPS HOME](#) | [Data Entry](#) | [FM Functions](#) | [Search & Reports](#) | [Authorities](#) | [Help](#) | [Security/Privacy Notice](#) |

Please send comments or questions to orpssupport@hq.doe.gov or call the Helpline at (800) 473-4375. Hours: 7:30 a.m. - 5:00 p.m., Mon - Fri (ETZ). Please include [detailed information](#) when reporting problems.