



Office of Health, Safety and Security



Monthly Analysis of Electrical Safety Occurrences

August 2011

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

There were seventeen electrical safety occurrences reported in August, compared to the twelve occurrences reported in July. Although the number of occurrences increased, the total number of reported electrical shocks decreased from five to two. Also in August, there was a large increase in the number of electrical intrusion occurrences and a slight increase in the number of occurrences involving hazardous energy control. One issue of concern is that in three occurrences involving energized circuits, workers had believed that the electrical cables/circuits in and around where they were working had been de-energized. Believing that a safe work condition exists without proof is a dangerous situation. Maintaining a questioning attitude is very important as well as marking systems as to their operational status during demolition, construction, and modification projects to ensure workers are aware of any potential hazards.

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 of the August occurrence reports is provided in Attachment 2.

Electrical Shock

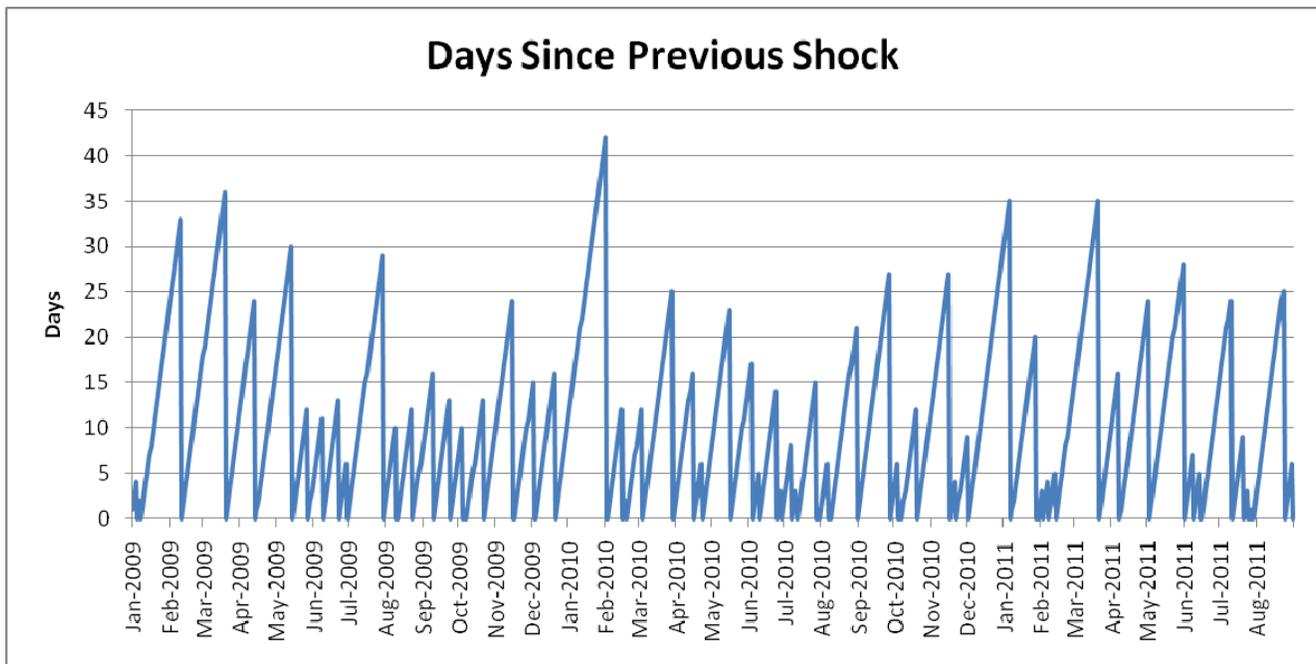
There were two occurrences in August that resulted in an electrical shock. Both of these shocks were considered to be minor. The occurrences are summarized below.

1. An operator technician reported that he had received an electrical shock when he rested his hand on a control panel. The operator technician stated that he was in the vaporizer

area when he leaned his hand against an electrical control panel and received what he described as a shock or tingling in his arm. There were no marks on his skin and he did not believe that he was injured. The area was barricaded off until an evaluation could be performed to determine the source of the shock. The operator technician was sent for a medical exam and was found not to have suffered any ill effects from the contact. Investigators believe that a piece of aluminum flashing on top of the control panel had slipped through the vent openings, contacted energized components, and energized the enclosure. The cabinet was confirmed to be properly grounded.

2. While pushing several communication and data cables against a cubicle wall panel, a worker's right hand brushed against the metal base plate resulting in a tingling feeling in the fingertips. The worker informed the building manager that the bottom cubicle panels had some electricity running through them, which could result in a little shock. Investigators detected between 24 and 50 volts at various locations on the metal surfaces of the cubicle wall. The power to the panel was then secured and the wiring harness that received incoming power from a permanent wall receptacle and the line cord was removed from the cubicle panel. Examination showed slight damage to the insulation on one of the 120-volt AC conductors, resulting in induced voltage onto the nearby metallic case that houses the incoming conductors. The harness, the line cord, and the receptacle plug were replaced and retained for investigation. Subsequent measurements confirmed zero voltage on the metallic base plate and other metal parts of the cubicle wall. The worker was medically evaluated and returned to work.

The following chart shows the number of days since the previous electrical shock for the DOE complex. The present interval is 5 days. The longest interval was 41days in 2010.



Electrical Intrusions

In August there was an increase in the number of electrical intrusion occurrences (i.e., cutting/penetrating and excavating electrical conductors) from one occurrence in July to six this month. Three of these occurrences involved excavation type work and the other three resulted in cutting energized conductors with hand tools. None of occurrences involved planned electrical work. The workers were either equipment operators or laborers. In addition, five of the occurrences involved subcontractors, which could indicate a need for more effective oversight of subcontractor work activities. Because electrical intrusion-type events typically involve non-electrical workers performing non-electrical work, the workers may not have any type of electrical safety training or any expectation that an electrical hazard exists. The six electrical intrusion events are summarized below.

1. A subcontractor was scraping soil as part of a sidewalk extension project when the bucket of a skid-steer struck a buried electrical conduit containing a 277-volt electrical line that was not energized at the time. The electrical line was not damaged, but was taken out of service until the conduit could be repaired. An excavation permit had been issued and the electrical line had been located and marked before the incident.
2. Workers where using an excavator to expose a French drain to gather confirmatory soil samples when power lines, which serviced several buildings, were unearthed and damaged. The work documents indicated that there were no energized utilities in the area and these lines were identified as de-energized.
3. A general subcontractor was using a small excavator that came into contact with a de-energized buried conductor inside a steel conduit covered by an outer, weather proof, plastic coating. The outer plastic coating was damaged, but the conduit and internal conductor were not affected.
4. An insulator observed an electrical arc while using a knife to cut away some insulation from exhauster seal pot drain lines. The arc occurred when the knife penetrated the insulation of a heat trace line and shorted it to ground. It was understood that the heat trace line was supposed be de-energized.
5. A contractor cut into an electrical conduit containing an energized single phase 277-volt lighting circuit while working on a re-model project. The contractor used a reciprocating saw to cut and remove ceiling sheetrock when the incident occurred.
6. A subcontractor severed an energized 277-volt electrical cable with a pair of non-voltage rated lineman pliers while removing part of a wall that was constructed of metal studs and drywall board. He believed that the cable was de-energized. All power in the area was lost and emergency lighting operated as designed.

Hazardous Energy Control

In August there were five reported occurrences involving lockout/tagout (LOTO) issues. In two of the occurrences workers found uncontrolled energy either as part of the zero-energy check

or just following the establishment of the LOTO. Performing a safe to work check is a necessary step in the hazardous energy control process to ensure that exposed electrical conductors or circuit parts are de-energized so that work can proceed safely. Two of the occurrences subcontractors started working before LOTO permits had been finalized and approved. These types of LOTO mistakes typically result from a failure to understand the sites LOTO process or from a breakdown in communications between work groups. These occurrences are summarized below.

1. A subcontract electrician discovered uncontrolled voltage while performing a preliminary absence of voltage check in a heating, ventilation, and air conditioning control panel. Terminals within the panel were checked using a Tegam tester and no voltage was found; however, the electrician found voltage at the top of the panel using a proximity tester. The energized line was a pass through and was not noted on any drawings. The electrician was wearing the proper personal protective equipment and was never exposed to the voltage source.
2. After a LOTO was established to replace bearings/coupling in an exhaust fan, two wires inside a motor termination box were found to be energized. The energized 120-volt wires were to the motor heater winding circuits. The determination of the LOTO was performed at the Motor Control Center (lockout boundary). The motor termination box was not used as a determination point because the wiring was shrink-wrapped and sealed. Work was stopped on the exhaust fan.
3. Two carpenters encountered sparks while moving electrical armored cable whips out of their way to install unistrut supports for a lay-in ceiling grid. They assumed the circuits were not energized. This circuit was connected to wiring for lights to be installed. The previous contractor had safed the ends of the whip conductors with tape rather than locking them out. When the worker moved the whip conductor, it shorted because the tape used to safe off the end of the wire had come off.
4. A construction manager and a subcontractor for a building renovation project mistakenly believed that they had been issued a valid LOTO permit and began electrical work before the finalized Permit was issued. There were no injuries, no contact with, nor exposure to hazardous energy.
5. A facilities project manager had discovered that a subcontractor electrician had applied a lock to a switch panel for a 30-amp emergency circuit replacement project before the LOTO Permit was issued. There were no electrical exposures or injuries as a result of this incident.

Electrical Near Miss

In August there were eight occurrences that were considered to be an electrical near miss. Four of these occurrences were previously discussed (electrical shock #1 and electrical intrusions #2, #5, and #6). The other four near-miss occurrences are summarized below.

1. When a computer technician was plugging in a printer in a cubical office, a circuit breaker tripped. The pressing of the printer's plug into the receptacle pushed on a matching second receptacle box that was in a back-to-back configuration. The second receptacle was dislodged and it slid down, which allowed the metal access plate to slide between the face of a partially plugged in surge protector and the receptacle face, causing one of the prongs on a surge protector plug to contact the metal access plate, resulting in a pop and small flash. Electricians inspected and found 64 back-to-back receptacle units, and only two of the units had loose mounting brackets.
2. Two workers were removing a cover from a pressure switch when the un-insulated screw driver being used to remove the cover's capture screw touched a metal grounded pipe resulting in a spark. It was determined that the energy (120V) came from crushed wiring that was in contact with the switch cover capture screw. The entire switch box that had contact with the screw was plastic. When wiring shorts against a metal enclosure, typically a breaker trips or a fuse blows. However, with the entirely plastic housing, the energy went undetected until the switch cover was removed.
3. An electronic technician was evaluating a capacitor bank of the Laser Gas Sampling System (LGSS) power supply when a terminal block failed producing an arc and unexpected dispersion of pieces. The technician was following the manufacturer's technical representative diagnostic advice by telephone and was checking the voltage of the capacitor bank for stability of charge. The capacitor bank was charged using the LGSS circuits. The technician donned appropriate personal protective equipment (voltage rated gloves, face shield, jacket) and using one hand, approached the terminal block with the probes of a Fluke model 87. That's when the terminal block failed. The technician then placed the LGSS in a safe and stable condition. The capacitor bank is an assembly of eight capacitors with a charge of 350 volts, 5,600 micro-farads each, total of 2,744 Joules (approximately 1 watt-hour).
4. A carpenter removed a ceiling tile above a cubicle and saw sparking from a wire whip that contained exposed electrical wiring. Subsequent inspection of the wire whip showed that the exposed electrical wiring had arced against a flex conduit tripping a circuit breaker. Three electrical wire whips were found coiled together; two of the wire whips had wire nuts affixed to them, while the third one did not.

The following table shows a breakdown of the outcomes, performance issues, and worker types associated with electrical safety occurrences for August 2011.

Number of Occurrences	Involving:	Last Month
2	Electrical Shocks	5
0	Electrical Burns	0
5	Hazardous Energy Control	3
1	Inadequate Job Planning	1
3	Inadvertent Drilling/Cutting of Electrical Conductors	1
3	Excavation of Electrical Conductors	0
0	Vehicle Intrusion of Electrical	0

Number of Occurrences	Involving:	Last Month
	Conductors or Equipment	
8	Electrical Near Misses	5
5	Electrical Workers	6
12	Non-Electrical Workers	6
9	Subcontractors	3

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 initially 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

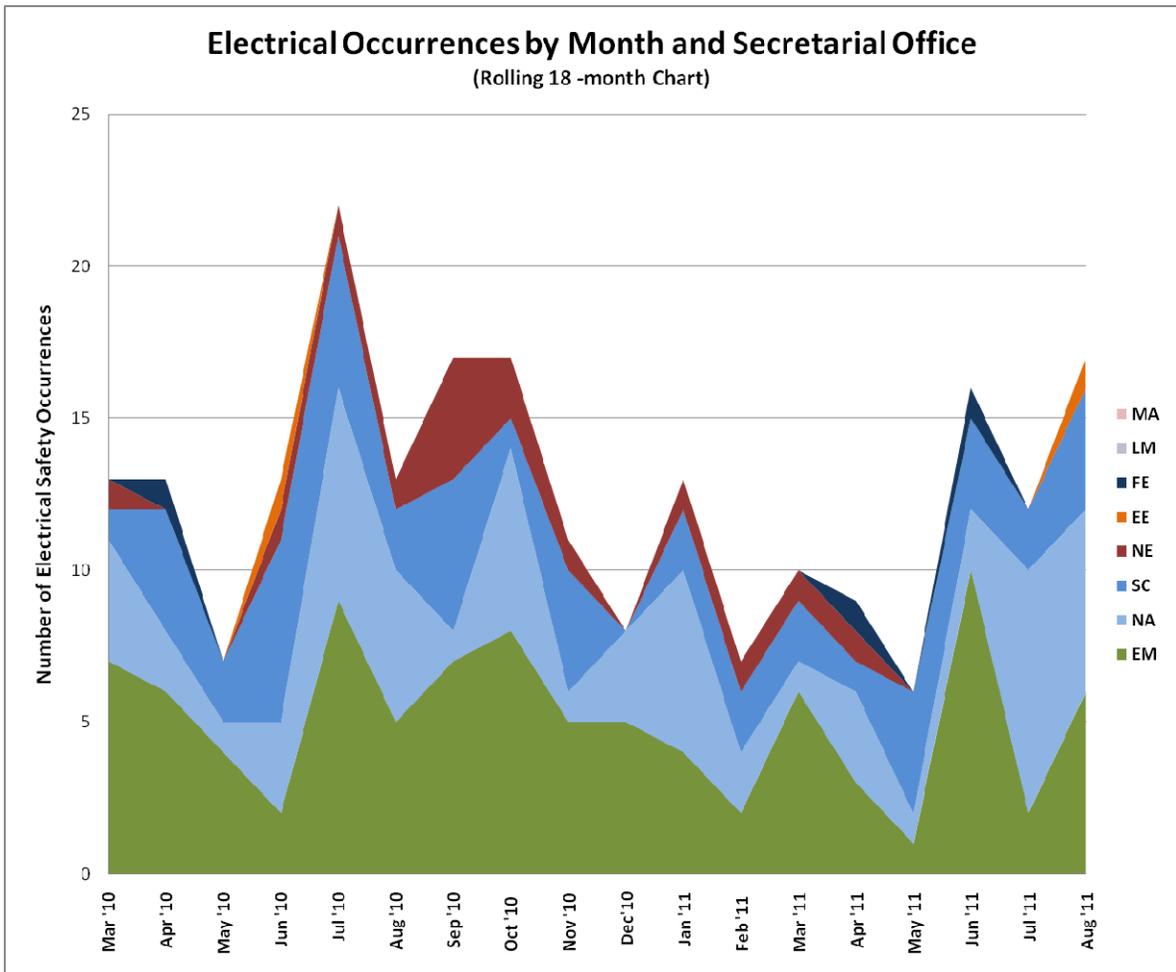
The search produced 20 occurrence reports and three of the reports were culled out. The first report (EM-RP--BNRP-RPPWTP-2011-0016) did not involve electrical hazards, the second report (EM-RP--BNRP-RPPWTP-2011-0017) involved recurring LOTO events, and the third report (EM-RL--CPRC-GENLAREAS-2011-0016) was being cancelled.

The following Table provides a summary of the electrical safety occurrences for CY 2011.

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
August	17	2	0	0
July	12	5	0	0
June	16	5	1	0
May	6	1	0	0
April	9	1	0	0
March	10	1	0	0
February	7	3	0	0
January	13	3	1	0
2011 total	90 (avg. 11.3/month)	21	2	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
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 monthly average for 2011 increased from last month's average of 10.4 occurrences.

The following chart shows the distribution of electrical safety occurrences by secretarial office. As can be seen, Environmental Management sites were the largest contributor. The Office of Energy Efficiency and Renewable Energy reported their first event in over a year.

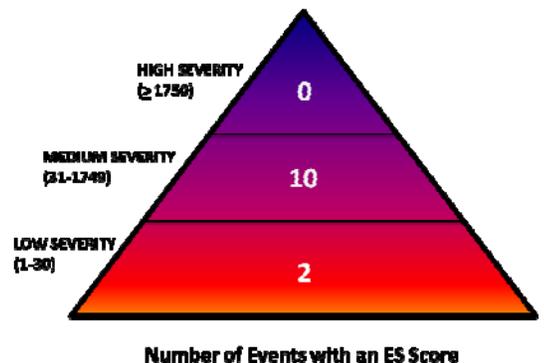


Electrical Severity

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.

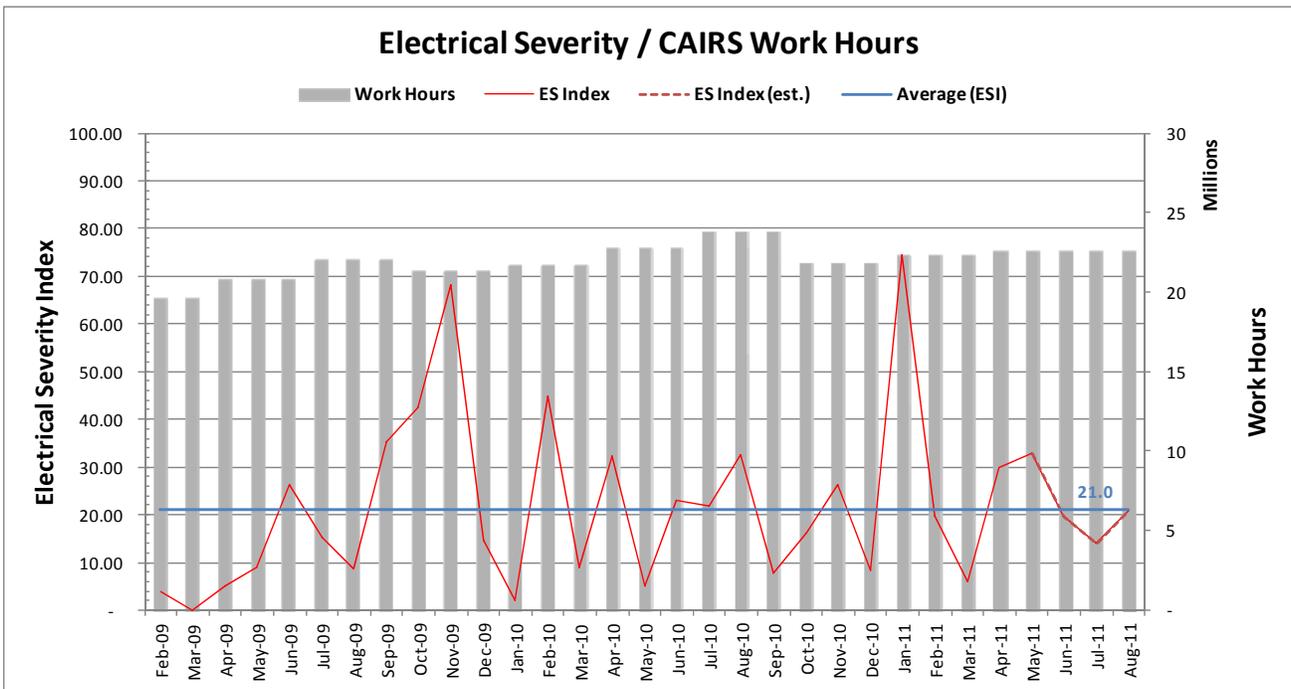
Electrical Severity Scores

The electrical severity scores are calculated using Revision 2 of the Electrical Severity Measurement Tool, which can be found on the EFCOG website at http://www.efcog.org/wg/esh_es/docs/Electrical_Severity_Measurement_Tool.pdf. Five of the electrical occurrences this month did not have an Electrical Severity (ES) score. The other twelve occurrences are distributed as shown in the triangle, with the highest ES score being 550. The actual score for each event is provided in the event tables (Attachment 1).



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. Each DOE site calculates their own ESI and sets their own annual ESI goals. These ESI goals can vary from 0.22 to 160.0. Presently, the DOE complex goal is for the monthly ESI to be below the average ESI and to reduce the average ESI for the DOE complex to < 20.0. This average ESI goal was established based on the average ESI for 2009 (18.99) and 2010 (19.03). The following chart shows a calculated ESI for the DOE complex, which shows the present ESI just below the 30-month average ESI.



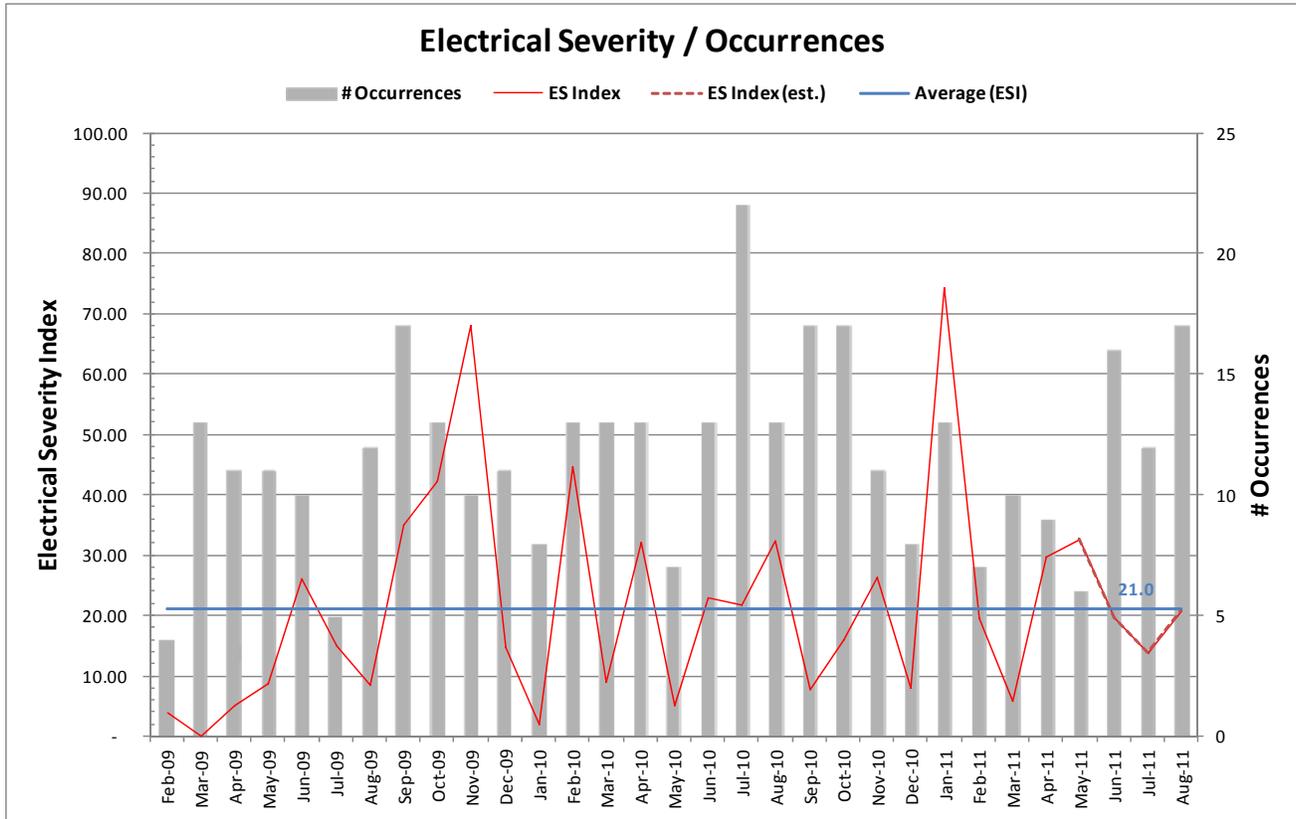
Note: An estimated ESI is calculated until accurate CAIRS man-hours are available. The chart is updated monthly.

Category	July	August	Δ
Total Occurrences	12	17	+5
Total Electrical Severity	1,578	2,360	+782
Estimated Work Hours	22,629,691* (22,629,691)	22,630,393	+702
ES Index	13.95* (13.95)	20.86	+6.91
Average ESI	21.0	21.0	0.0

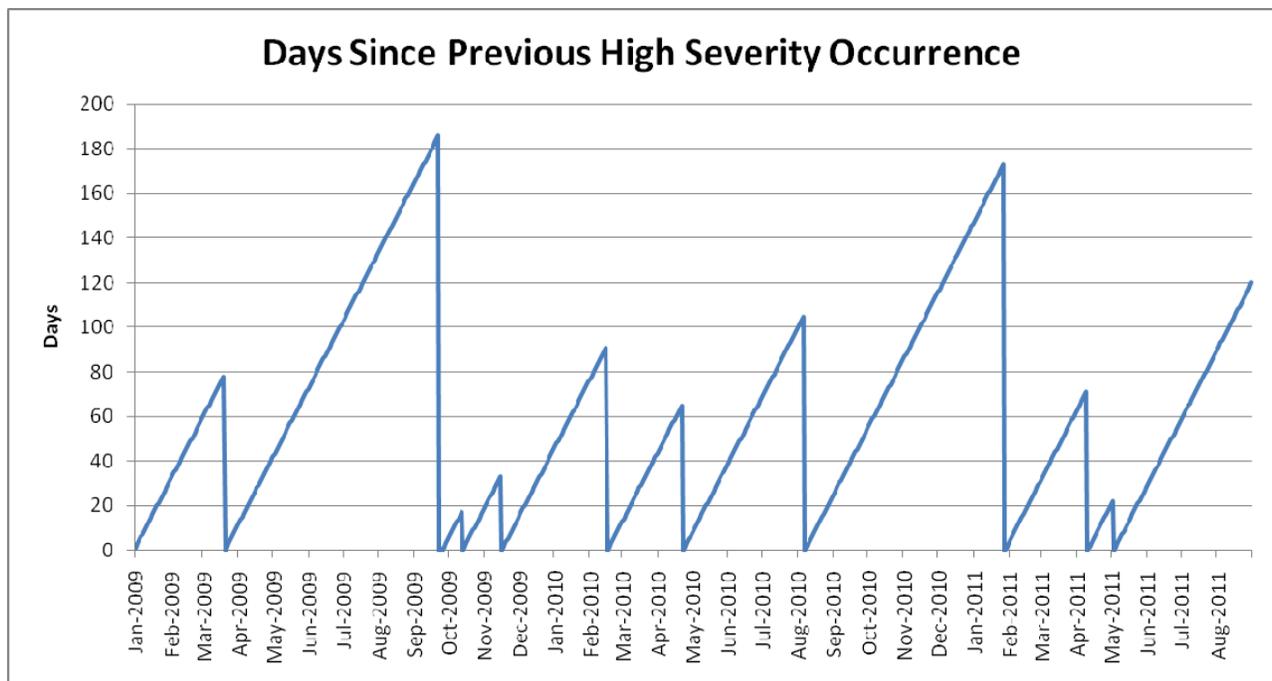
* These are estimated CAIRS work hours for July and ES Index based on the estimated hours. The estimated hours and ES Index based on the estimated hours (as reported in July) are shown below in parentheses.

$$\text{Electrical Severity Index} = (\Sigma \text{Electrical Severity} / \Sigma \text{Work Hours}) 200,000$$

The following chart shows the ESI with the number of Occurrences instead of Work Hours.



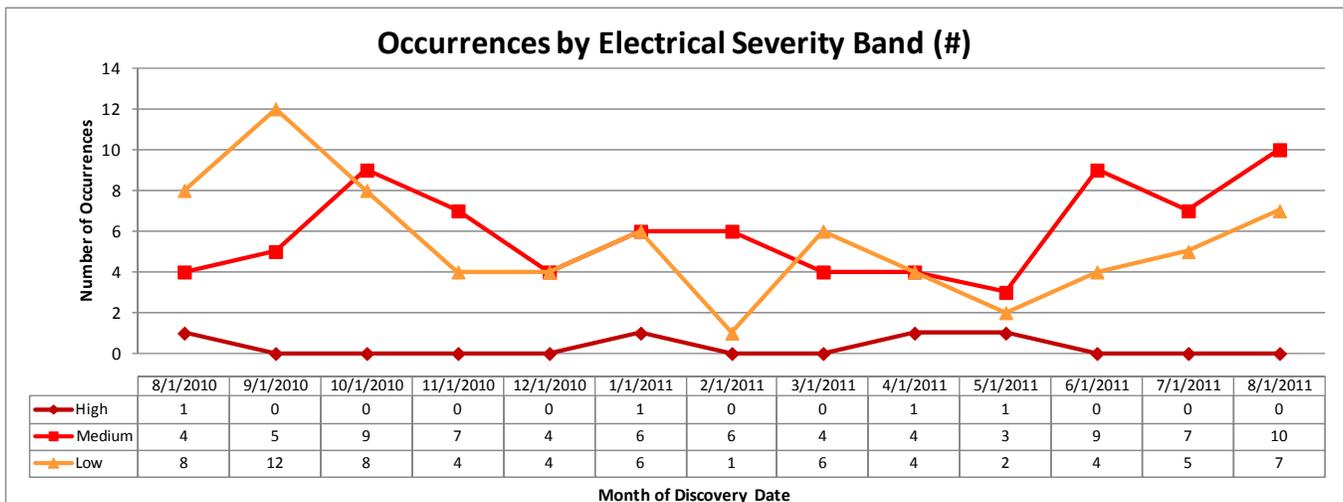
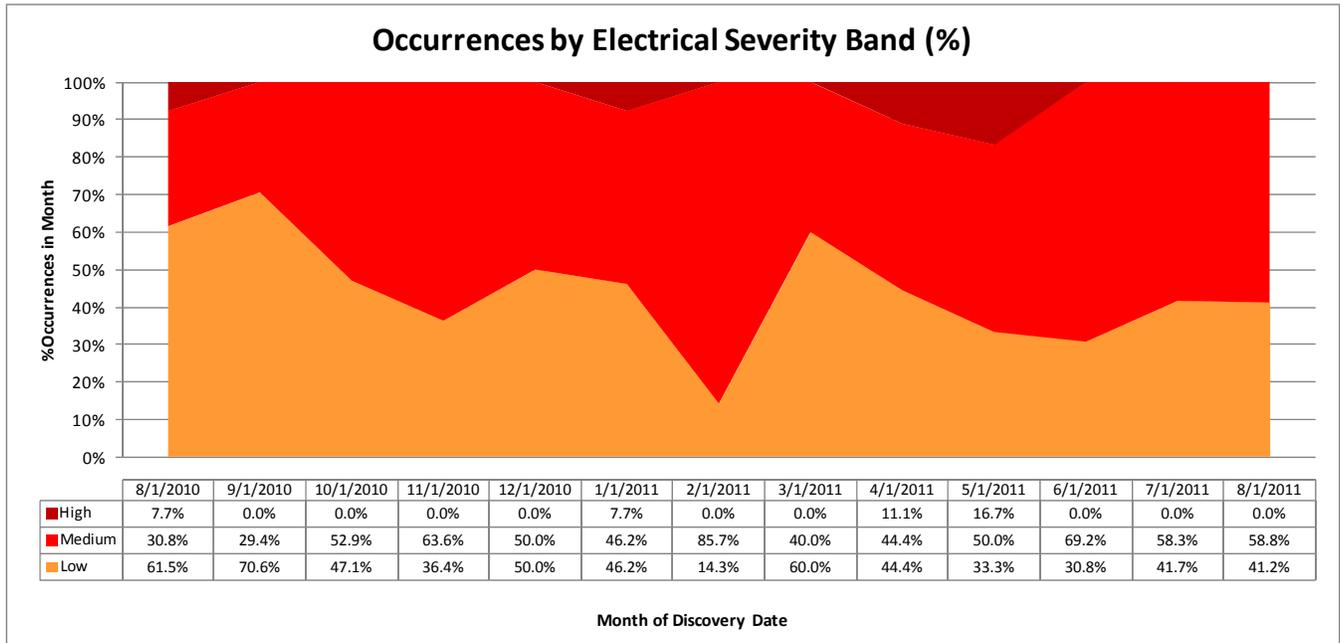
The average ESI has increased from 19.2 in June 2010 to 21.0 in August 2011. The following chart shows the number of days since the previous high severity occurrence. The present interval is 116 days. The longest interval was 181 days in 2009.



Summary of Occurrences by Severity Band

For the interval August 2010 through August 2011 (current month and the past 12), the next two charts summarize occurrences by severity band and month of discovery date:

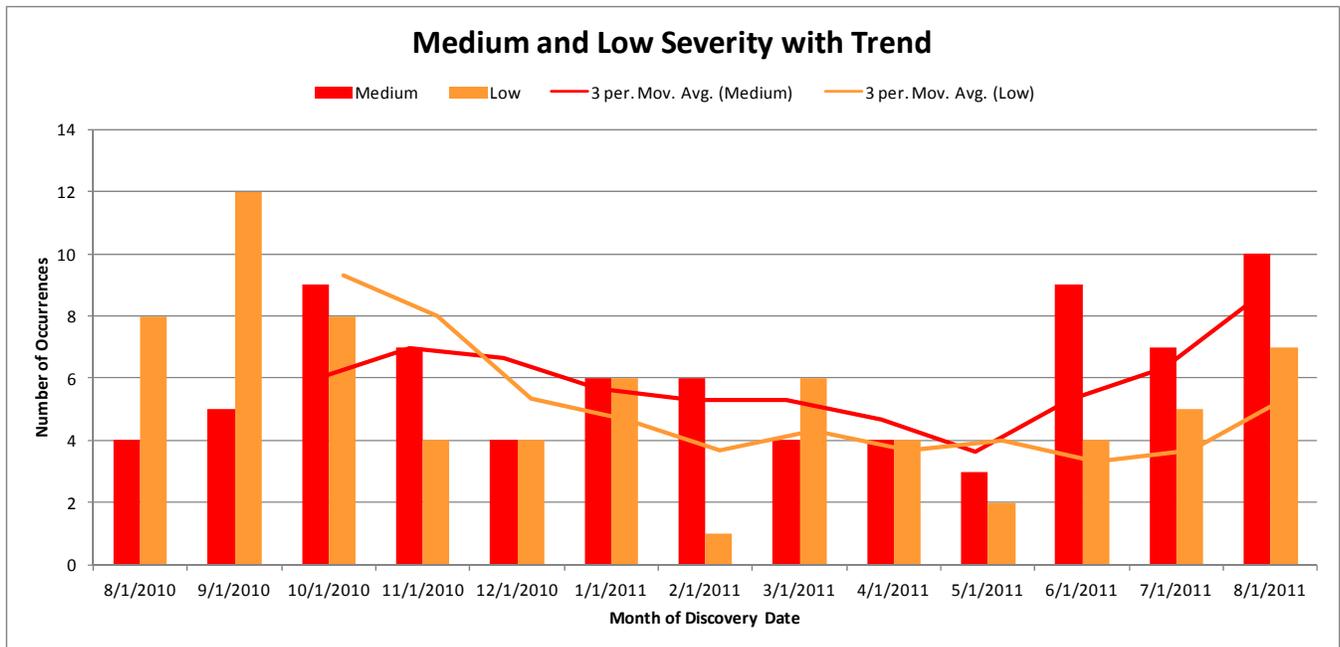
- By percentage of total occurrences in month
- By number of occurrences in month



What can be seen from the previous two charts is that the number of occurrences with High electrical severity scores has remained at zero for the past three months and that the number of occurrences with Medium and Low scores have increased. It is more desirable to see more Low than Medium severity occurrences as was seen in September 2010 and March 2011.

Medium and Low Severity with Trend

The following chart focuses on the Medium and Low severity data series for August 2010 through August 2011. Trend lines are included for each, using a 3-month moving average.



The 3-month moving average shows an increase in the Medium and Low severity occurrences since May 2011.

Additional Resources

Electrical Safety Blog

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

Electrical Safety Wiki

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

EFCOG Electrical Safety Subgroup

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

Center of Excellence for Electrical Safety

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

Contact

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Attachment 1

Electrical Safety Occurrences – August 2011

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	EE-GO--NREL-NREL-2011-0010	A subcontractor hit and damaged a conduit containing a non-energized 277V line with a skid-steer bucket.						X			3	4B(5)	0
2	EM--PPPO-BWCS-PORTDUCON-2011-0004	An operator technician received an electrical shock when he rested his hand on a control panel.	X								2	2C(1)	330
3	EM-RL--WCH-ERDF-2011-0005	A computer technician plugged in a surge protector into a receptacle and a prong touched a metal access plate causing a pop and small flash tripping a breaker.									4	10(2)	110
4	EM-RL--WCH-REMACT-2011-0004	An excavator damaged de-energized power lines that serviced nearby buildings.						X			3	2C(2)	0
5	EM-RP--WRPS-TANKFARM-2011-0019	An insulator saw an electrical arc while cutting away insulation when his knife penetrated a heat trace line and shorted it to ground.							X		3	2C(2)	110
6	EM-SR--SRNS-SIPS-2011-0009	An electrician discovered 120V while performing a preliminary absence of voltage check in a HVAC control panel.				X					3	2C(2)	10
7	EM-SR--SRR-WVIT-2011-0007	After a LOTO was established, two 120V wires were found energized to a motor heater winding circuit.				X					3	2C(2)	10
8	NA--LASO-LANL-ADOADMIN-2011-0009	Arc occurs when screw driver hits energized wire while removing switch cover.									3	2C(2)	110
9	NA--LASO-LANL-ADOADMIN-2011-0010	Energized lighting wire sparks when tape end comes off while moving the wires.				X					3	2C(2)	100
10	NA--LASO-LANL-ADOADMIN-2011-0011	A carpenter removed a ceiling tile above a cubicle and saw sparking from a wire whip containing exposed electrical wiring.									3	2C(2)	100

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	NA--PS-BWP-PANTEX-2011-0056	An electronic technician was evaluating a power supply capacitor bank when a terminal block failed producing an arc.									3	2C(2)	50
12	NA--PS-BWP-PANTEX-2011-0059	An excavator hit a de-energized buried 480V conductor inside a conduit.						X			3	10(2)	0
13	NA--SS-SNL-CASITE-2011-0004	A contractor cut into conduit containing an energized 277V single-phase circuit with a saw.							X		3	2C(2)	550
14	SC--ASO-ANLE-ANLEFMS-2011-0015	A worker was pushing com and data cables against a cubicle wall when his hand touched metal and felt tingling in the fingertips. Induced 24V – 50V was detected on the cubicle wall caused by a damaged 120V line.	X								3	2C(2)	330
15	SC--BSO-LBL-OPERATIONS-2011-0016	Electrical work was performed without following LOTO procedure.				X					3	2C(2)	0
16	SC--BSO-LBL-OPERATIONS-2011-0017	Locks were applied before issuance of the LOTO permit.				X					3	2C(2)	0
17	SC-ORO--ORNL-X10EAST-2011-0001	A subcontractor cut an energized 277V four conductor cable with a pair of non-voltage rated pliers.					X		X		3	2C(2)	550
	TOTAL		2	0	0	5	1	3	3	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 event, (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

Attachment 1

Electrical Safety Occurrences – August 2011

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	EE-GO--NREL-NREL-2011-0010	A subcontractor hit and damaged a conduit containing a non-energized 277V line with a skid-steer bucket.		X	X	X					X			
2	EM--PPPO-BWCS-PORTDUCON-2011-0004	An operator technician received an electrical shock when he rested his hand on a control panel.		X		X					X			X
3	EM-RL--WCH-ERDF-2011-0005	A computer technician plugged in a surge protector into a receptacle and a prong touched a metal access plate causing a pop and small flash tripping a breaker.		X		X					X			X
4	EM-RL--WCH-REMACT-2011-0004	An excavator damaged de-energized power lines that serviced nearby buildings.		X	X	X					X			X
5	EM-RP--WRPS-TANKFARM-2011-0019	An insulator saw an electrical arc while cutting away insulation when his knife penetrated a heat trace line and shorted it to ground.		X		X					X			
6	EM-SR--SRNS-SIPS-2011-0009	An electrician discovered 120V while performing a preliminary absence of voltage check in a HVAC control panel.	X		X		X				X			
7	EM-SR--SRR-WVIT-2011-0007	After a LOTO was established, two 120V wires were found energized to a motor heater winding circuit.	X				X				X			
8	NA--LASO-LANL-ADOADMIN-2011-0009	Arc occurs when screw driver hits energized wire while removing switch cover.		X		X					X			X
9	NA--LASO-LANL-ADOADMIN-2011-0010	Energized lighting wire sparks when tape end comes off while moving the wires.		X	X	X					X			
10	NA--LASO-LANL-ADOADMIN-2011-0011	A carpenter removed a ceiling tile above a cubicle and saw sparking from a wire whip containing exposed electrical wiring.		X		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	NA--PS-BWP-PANTEX-2011-0056	An electronic technician was evaluating a power supply capacitor bank when a terminal block failed producing an arc.	X			X					X			X
12	NA--PS-BWP-PANTEX-2011-0059	An excavator hit a de-energized 480V buried conductor inside a conduit.		X	X	X					X			
13	NA--SS-SNL-CASITE-2011-0004	A contractor cut into conduit containing an energized 277V single-phase circuit with a saw.		X	X	X					X			X
14	SC--ASO-ANLE-ANLEFMS-2011-0015	A worker was pushing com and data cables against a cubicle wall when his hand touched metal and felt tingling in the fingertips. Induced 24V – 50V was detected on the cubicle wall caused by a damaged 120V line.		X		X					X	X		
15	SC--BSO-LBL-OPERATIONS-2011-0016	Electrical work was performed without following LOTO procedure.	X		X		X				X			
16	SC--BSO-LBL-OPERATIONS-2011-0017	Locks were applied before issuance of the LOTO permit.	X		X		X				X			
17	SC-ORO--ORNL-X10EAST-2011-0001	A subcontractor cut an energized 277V four conductor cable with a pair of non-voltage rated pliers.		X	X	X		X			X			X
	TOTAL		5	12	9	13	4	1	0	0	17	1	0	8

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 55361 OR(s) with 58671 occurrences(s) as of 9/13/2011 6:37:43 AM
 Query selected 17 OR(s) with 17 occurrences(s) as of 9/13/2011 10:04:46 AM

Download this report in Microsoft Word format. 

1)Report Number: [EE-GO--NREL-NREL-2011-0010](#) **After 2003 Redesign**
Secretarial Office: Energy Efficiency and Renewable Energy
Lab/Site/Org: National Renewable Energy Laboratory
Facility Name: National Renewable Energy Laboratory
Subject/Title: Subcontractor struck buried electrical conduit while operating skid steer
Date/Time Discovered: 08/31/2011 15:50 (MTZ)
Date/Time Categorized: 08/31/2011 17:12 (MTZ)
Report Type: Notification
Report Dates:

Notification	09/02/2011	17:21 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3
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.

10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 3 occurrence)

Cause Codes:
ISM:
Subcontractor Involved: Yes
 Newstrom-Davis and CB Concrete
Occurrence Description: On August 30, 2011, a subcontract worker was scraping soil as part of a

sidewalk extension project when the skid-steer bucket struck a buried electrical conduit. The conduit housed a 277-volt electrical line which was not energized at the time. The electrical line was not damaged however has been taken off-line until repairs to the conduit are completed. An excavation permit was issued and the electrical line was located and marked at the time of the incident. The NREL project manager has stood down operations pending further review of the incident and implementation of corrective actions.

No worker injuries or significant property damage occurred as a result of the incident. NREL and the subcontract organization have initiated an incident investigation.

Cause Description:

Operating Conditions: Normal construction operations, no unusual conditions identified

Activity Category: Construction

Immediate Action(s): Work activities have been suspended pending further investigation.

FM Evaluation: No worker injuries or significant property damage occurred as a result of the incident.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: Yes.
Before Further Operation? Yes
By Whom: NREL Site Operations
By When: 09/07/2011

Division or Project: Site Operations

Plant Area: South Table Mountain

System/Building/Equipment: Outdoor construction

Facility Function: Solar Activities

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 07D--Electrical Systems - Electrical Wiring
08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues
11G--Other - Subcontractor
12C--EH Categories - Electrical Safety
14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency

HQ Summary: On August 30, 2011, a subcontract worker was scraping soil as part of a sidewalk extension project when the skid-steer bucket struck a buried electrical conduit. The conduit contained a 277-volt electrical line that was not energized at the time. The electrical line was not damaged, but was taken offline until repairs to the conduit are completed. An excavation

permit was issued and the electrical line was located and marked at the time of the incident. The National Renewable Energy Laboratory (NREL) project manager has stopped operations pending further review of the incident and implementation of corrective actions. No worker injuries or significant property damage occurred as a result of the incident. NREL and the subcontract organization have initiated an incident investigation.

Similar OR Report Number:

Facility Manager:

Name	JORDAN, MAUREEN Y
Phone	(303) 275-3248
Title	EHS Office Director

Originator:

Name	BAYLOSIS, ED A.
Phone	(303) 275-3240
Title	ISM PROGRAM MANAGER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/31/2011	17:12 (MTZ)	Event Distribution	NREL/DOE

Authorized Classifier(AC):

2)Report Number:

[EM--PPPO-BWCS-PORTDUCON-2011-0004](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Portsmouth Gaseous Diffusion Plant

Facility Name:

Portsmouth Duf6 Conversion Plant

Subject/Title:

Employee Contacted Hazardous Energy From An Unexpected Source

Date/Time Discovered:

08/24/2011 08:00 (ETZ)

Date/Time Categorized:

08/24/2011 08:30 (ETZ)

Report Type:

Notification

Report Dates:

Notification	08/25/2011	16:54 (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: An Operator Technician reported at the morning brief, held at 0800 hours on August 24, 2011, that he had received an electrical shock the previous day when he rested his hand on a control panel. The employee stated that at approximately 1850 hours on August 23, 2011, he was in the vaporizer area when he leaned his hand against an electrical control panel (box) and received what he described as a shock or tingling in his arm. There were no marks on his skin and he did not believe he was injured. The work shift ended at 1900 hours and the employee went home without reporting the incident to his supervisor.

Following notification of the incident at the briefing, the area was immediately barricaded off until an evaluation could be performed to determine the source of the shock. The operator was sent for a medical exam. The exam concluded that he had not suffered any ill effects from the contact.

A critique was conducted at 1500 hours on August 24th. A piece of aluminum flashing was found on top of the electrical cabinet. It is believed that the piece of flashing slipped through the enclosure vent openings, contacted energized components and energized the enclosure. Engineering inspected the area of concern. No black/burned marks on the box, or the flashing were found, and no signs of arcing were evident inside the cabinet. The cabinet was confirmed to be properly grounded with a megohm meter. All other like cabinets were checked and all were found to have satisfactory grounding.

The investigation is still in progress.

Cause Description:

Operating Conditions: Normal

Activity Category: Startup

Immediate Action(s): The area was immediately barricaded off. The operator was sent for a medical exam.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is No

Required:

Division or Project: B&W Conversion Services, LLC
Plant Area: Grid Map Location F2
System/Building/Equipment: Conversion Building
Facility Function: Uranium Conversion/Processing and Handling
Corrective Action:
Lessons(s) Learned:

HQ Keywords: 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
 01P--Inadequate Conduct of Operations - Inadequate Oral Communication
 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock
 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
 12C--EH Categories - Electrical Safety
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On August 24, 2011, an Operator Technician reported at the morning brief, that he had received an electrical shock the previous day when he rested his hand on a control panel. The employee stated that he was in the vaporizer area when he leaned his hand against an electrical control panel (box) and received what he described as a shock or tingling in his arm. There were no marks on his skin and he did not believe he was injured. The work shift ended and the employee went home without reporting the incident to his supervisor. Following notification of the incident, the area was immediately barricaded off until an evaluation could be performed to determine the source of the shock. The operator was sent for a medical exam which concluded that he had not suffered any ill effects from the contact. A critique was conducted. It is believed that a piece of aluminum flashing on top of the cabinet had slipped through the vent openings, contacted energized components and energized the enclosure. The cabinet was confirmed to be properly grounded.

Similar OR Report Number:

Facility Manager:

Name	Ken Collier
Phone	(740) 289-5441
Title	Plant Manager

Originator:

Name	Blackmon, Josie Y
Phone	(740) 289-5439
Title	COMPLIANCE OFFICER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
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08/24/2011	09:00 (ETZ)	Jack Zimmerman	DOE PPPO
08/24/2011	09:00 (ETZ)	Ken Collier	BWCS
08/24/2011	09:00 (ETZ)	Michelle Reichert	BWCS
08/24/2011	09:00 (ETZ)	Pete Burban	DOE PPPO
08/24/2011	09:05 (ETZ)	John Saluke	DOE PPPO
08/24/2011	09:08 (ETZ)	Tony Takacs	DOE PPPO
08/24/2011	09:12 (ETZ)	Dee Perkins	DOE PPPO

Authorized Classifier(AC): Beth Hummel-Keener **Date:** 08/25/2011

3)Report Number: [EM-RL--WCH-ERDF-2011-0005](#) **After 2003 Redesign**
Secretarial Office: Environmental Management
Lab/Site/Org: Hanford Site
Facility Name: Env.Restoration Disposal Facility
Subject/Title: Malfunctioning Mounting Bracket on an Electrical Receptacle is Discovered

Date/Time Discovered: 08/31/2011 13:40 (PTZ)

Date/Time Categorized: 08/31/2011 13:50 (PTZ)

Report Type: Notification/Final

Report Dates:

Notification	09/06/2011	19:21 (ETZ)
Initial Update	09/06/2011	19:21 (ETZ)
Latest Update	09/06/2011	19:21 (ETZ)
Final	09/06/2011	19:21 (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 to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 4 occurrence)

Cause Codes:

ISM: 5) Provide Feedback and Continuous Improvement

Subcontractor Involved: No

Occurrence Description: On 8-31-11, at the Environmental Restoration Disposal Facility (ERDF), inside mobile office (MO) 607, a computer technician had installed a printer in a cubical office. He attempted to plug the printer into the receptacle box located at the bottom of the dividing wall. The area of the receptacle had a metal access cover over a wire run. The pressing of the

printer's plug into the first receptacle, pushed on a matching second receptacle box that was in a back-to-back configuration. The second receptacle located inside an adjoining cubicle divider was dislodged and it slid down one half inch. This allowed a portion of the metal access plate to slide between the face of a partially plugged in surge protector and the receptacle face. One of the prongs on a surge protector plug contacted the metal access plate. This caused a pop and small flash that resulted in a breaker being tripped. There were no injuries and no electricity was introduced to the computer technician.

Electricians were called in to investigate the event. They placed a Lock Out/ Tag Out (LO/TO) on the breaker box. After removing the metal access panel on both sides of the divider wall, they exposed the wiring run. The electricians discovered the two receptacle boxes were installed as a single back to back unit. This unit had a mounting bracket that should have been pressed into a metal track, inside the wiring run. The back to back unit was tested and found to be serviceable. The unit was then split into individual receptacles and secured in two separated locations inside the wiring run. The metal access panel had engineered knock out plates that were used to relocate the receptacles. The affected electrical system was checked and released from the LO/TO.

The electricians initial results were reviewed at a fact finding, along with the statement and actions of the computer technician. The he reported that he did not experience a shock from the event. According to the electricians initial report, when receptacles are in a back to back configuration, and mounted inside the wiring run, that under very limited conditions, the receptacles can become dislodged after many years of use. According to the electricians, it took years for the latent condition to be discovered. Based on this information the project would develop and issue a Safety Flash message to be sent to Hanford contractors. After the fact finding meeting, project management concluded the event was a management concern due to the possible extent of conditions involving multiple cubical divider walls and the possible configuration of receptacles boxes as back to back units.

Upon the direction of project management, the electricians developed the proper work package and applied an LO/TO on the systems they would inspect and correct as necessary. The electricians found 64 back to back receptacle units. They were inspected and only two units had loose mounting brackets. This included the first suspect receptacle unit. The two back-to-back units with loose mounting brackets were separated into individual receptacles and secured in two separated locations inside the wiring run. The remaining 60 receptacles had tight mounting brackets. The electricians completed their inspections and determined that all outlets in the ERDF cubicles of MO 607 were in a safe configuration and were safe

to use.

Cause Description:

Operating Conditions: Normal

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

- Immediate Action(s):**
1. The computer technician recognized a breaker may have tripped and immediately pulled the printer's plug out of the receptacle.
 2. A nearby supervisor received the report and sent a nearby electrician to investigate the event.
 3. The cubicle where the printer was located was temporarily blocked off and a warning was posted.
 4. The electrician conducted a Lock Out/Tag Out on the breaker box and began investigating the breaker and the suspect receptacles.
 5. Project management ordered an extent of conditions review using several electricians. They discovered the suspect receptacle box had a loose mounting bracket and there was some evidence of arcing on the surface of the second receptacle box. No other significant items to report at this time.
 6. A Safety Flash describing the event's conditions was prepared for release on the next business day.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Waste Operations

Plant Area: 600

System/Building/Equipment: Mobile Office, cubicle wall, wiring run, receptacle

Facility Function: Environmental Restoration Operations

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation
07D--Electrical Systems - Electrical Wiring
08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
12C--EH Categories - Electrical Safety
14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On August 31, 2011, at the Environmental Restoration Disposal Facility, inside mobile office 607, a computer technician was installing a printer in a cubical office, when an electrical breaker tripped. When the technician attempted to plug the printer into the receptacle box located at the bottom of the dividing wall, the pressing of the printer's plug into the receptacle pushed on a matching second receptacle box that was in a back-to-back configuration. The second receptacle was dislodged and it slid down one half inch. This allowed a portion of the metal access plate to slide between the face of a partially plugged in surge protector and the receptacle face, causing one of the prongs on a surge protector plug to contact the metal access plate, and resulting in a pop and small flash and the breaker being tripped. There were no injuries and no electrical exposure to the computer technician. Electricians placed a Lock Out/ Tag Out on the breaker box. Electricians inspected and found 64 back to back receptacle units, and only two of the units had loose mounting brackets. When receptacles are in a back to back configuration and mounted inside the wiring run, under very limited conditions the receptacles can become dislodged after many years of use. According to the electricians, it took years for the latent condition to be discovered. Based on this information the project would develop and issue a Safety Flash message to be sent to Hanford contractors.

Similar OR Report Number:

Facility Manager:

Name	ARMATROUT, JEFF
Phone	(509) 373-3310
Title	DIRECTOR WASTE OPERATIONS

Originator:

Name	TELLER, DONALD S
Phone	(509) 372-9722
Title	OCCURRENCE INVESTIGATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/31/2011	13:45 (PTZ)	Josh Allen	DOE FR
08/31/2011	17:15 (PTZ)	Newell Crary	DOE ONC

Authorized Classifier(AC):

4)Report Number:

[EM-RL--WCH-REMACT-2011-0004](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Hanford Site

Facility Name:

Remedial Action Projects

Subject/Title:

Excavator Damages Buried Electrical Lines

Date/Time Discovered: 08/03/2011 09:15 (PTZ)

Date/Time Categorized: 08/03/2011 10:50 (PTZ)

Report Type: Notification

Report Dates:

Notification	08/09/2011	11:19 (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: Yes
Phoenix Enterprises

Occurrence Description: On August 3, 2011 at 0915 hours, in the 100N Area, near the 1119N Mobile Office, workers used an excavator to expose an old french drain to gather confirmatory soil samples from it. The excavator unearthed and damaged power lines that serviced several nearby buildings. Work documents indicated that there were no energized utilities in the area and these lines were identified as de-energized. There were no injuries and only the wires were damaged. This event was initially categorized as a Group 10(2) Management Concern at the SC4 level. After the fact finding meeting project management reviewed the occurrence criteria and changed categorization to Group 2C(2) Hazardous Energy Control event at the SC3 level.

Cause Description:

Operating Conditions: Does not apply

Activity Category: Facility Decontamination/Decommissioning

Immediate Action(s): The excavation work was stopped and the work area was placed in a safe configuration.

The electrical subject matter expert (SME) was notified.

The scene was controlled for further investigations.

Notifications were made to senior management and DOE.

Electricians performed a Lock out Tag Out on the closest junction box and confirmed that the lines were de-energized.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

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

Division or Project: Field Remediation

Plant Area: 100N Area

System/Building/Equipment: Energized Line, Excavator

Facility Function: Environmental Restoration Operations

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control
 07D--Electrical Systems - Electrical Wiring
 08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues
 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
 11G--Other - Subcontractor
 12G--EH Categories - Industrial Operations
 14D--Quality Assurance - Documents and Records Deficiency
 14E--Quality Assurance - Work Process Deficiency
 14G--Quality Assurance - Procurement Deficiency

HQ Summary: On August 3, 2011, in the 100N Area near the 1119N Mobile Office, workers using an excavator to expose an old French drain to gather confirmatory soil samples unearthed and damaged power lines that serviced several nearby buildings. Work documents indicated that there were no energized utilities in the area and these lines were identified as de-energized. There were no injuries and only the wires were damaged. The excavation work was stopped and the work area was placed in a safe configuration. Notifications were made and electricians performed a Lockout/Tagout on the closest junction box.

Similar OR Report Number:

Facility Manager:

Name	CANTWELL, ROB
Phone	(509) 531-5125
Title	DIRECTOR FIELD REMEDIATION

Originator:

Name	TELLER, DONALD S
Phone	(509) 372-9722
Title	OCCURRENCE INVESTIGATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/03/2011	10:58 (PTZ)	Deanne McCranie	DOE FR
08/03/2011	11:06 (PTZ)	Ron Smithwick	DOE ONC

Authorized Classifier(AC):

5)Report Number:

[EM-RP--WRPS-TANKFARM-2011-0019](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Hanford Site

Facility Name:

Tank Farms

Subject/Title:

An Electrical Arc Observed Upon Cutting Knife Penetrating Heat Trace Line Insulation (ARRA)

Date/Time Discovered:

08/16/2011 12:04 (PTZ)

Date/Time Categorized:

08/16/2011 13:10 (PTZ)

Report Type:

Notification

Report Dates:

Notification	08/17/2011	16:03 (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
- 3) Develop and Implement Hazard Controls

Subcontractor Involved:

No

Occurrence Description:

On August 16, 2011, at approximately 09:56 hours, an insulator was removing insulation from the old K1 exhauster seal pot drain lines per work package TFC-WO-10-4246. While using a knife to cut away some

insulation, the insulator observed an electrical arc when the knife penetrated the insulation of a heat trace line and shorted it to ground. The insulator did not receive an electrical shock and did not feel anything, but he did see the arc. At the time it was understood that the heat trace line was supposed be de-energized.

At approximately 1300 hours, upon receipt of additional information, it was determined to declare this event as an occurrence. At 1310 hours, this event was categorized as a 2C(2) SC-3 occurrence.

Cause Description:

Operating Conditions:

Does not apply.

Activity Category:

Maintenance

Immediate Action(s):

Work under package TFC-WO-10-4246 was suspended.
Personnel exited the area.
Immediate area was posted with caution tape and signage.
Insulator sent to CSC Occupational Health Services for medical evaluation.
Investigation into the event initiated.
Formal event investigation meeting scheduled for August 17, 2011.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: Peoples, Charles W
By When:

Division or Project:

Washington River Protection Solutions LLC (WRPS)

Plant Area:

200 East

System/Building/Equipment:

Ventilation/241-AN/K1 Exhauster (Abandoned)

Facility Function:

Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01I--Inadequate Conduct of Operations - Safety System Actuation/Evacuation
01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other)
07D--Electrical Systems - Electrical Wiring
08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
12B--EH Categories - Conduct of Operations
13H--Management Concerns - American Recovery and Reinvestment Act (ARRA)
14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On August 16, 2011, an insulator was removing insulation from the old K1 exhauster seal pot drain lines per work package and observed an electrical arc while using a knife to cut away some insulation. The arc occurred when the knife penetrated the insulation of a heat trace line and shorted it to ground. The insulator did not receive an electrical shock and did not feel anything, but he did see the arc. At the time it was understood that the heat trace line was supposed be de-energized. The work under the work package was suspended and personnel exited the area, which was then posted with caution tape and signage. An investigation into the event was initiated.

Similar OR Report Number:

Facility Manager:

Name	Peoples, Charles W
Phone	(509) 373-1838
Title	Manager, Tank Farm Projects Field Crew

Originator:

Name	WATERS, SHAUN F
Phone	(509) 373-3457
Title	OPERATIONS SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/16/2011	13:13 (PTZ)	Sorensen, R. C.	DOE-ORP
08/16/2011	13:15 (PTZ)	Klos, J. J.	WRPS
08/16/2011	13:18 (PTZ)	Davis, K. W.	MSA-ONC

Authorized Classifier(AC):

6)Report Number:

[EM-SR--SRNS-SIPS-2011-0009](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Savannah River Site

Facility Name:

Site Infrastructure and Project Systems

Subject/Title:

Discovery of Uncontrolled Hazardous Energy, 717-F HVAC Control Panel

Date/Time Discovered:

08/25/2011 15:30 (ETZ)

Date/Time Categorized:

08/25/2011 15:30 (ETZ)

Report Type:

Notification

Report Dates:

Notification	08/29/2011	15:25 (ETZ)
Initial Update		
Latest Update		

Final		
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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
Columbia Mechanical

Occurrence Description:

On 8/22/11, at 0730 hours, a subcontract electrician discovered uncontrolled voltage while performing a preliminary absence of voltage check in a HVAC control panel in building 717-F. Terminals within the panel were checked using a Tegam and no voltage was found; however, the electrician found voltage at the top of the panel using a proximity tester. The subcontract electrician notified management and a Time Out was called. The scope of work being performed was to replace the McQuay HVAC Unit at 717-F and was controlled by Work Order# 1099879-01 and Lockout 717-F-011-050. The energized line was a pass through and was not noted on any prints.

The electrician was wearing the proper PPE and was never exposed to the voltage source.

Cause Description:

Operating Conditions:

Normal operations. A HVAC replacement project was in progress.

Activity Category:

Maintenance

Immediate Action(s):

1. All electrical work was put on hold within the barricaded area of the electrical panel.
2. Engineering was contacted and performed a walkdown to determine the source of the voltage.

FM Evaluation:

The Facility Manager concurs with this initial report.

The electrical severity score for the L/T event involving the 120 volts discovered inside the HVAC control panel in Building 717-F on Monday is 10. Severity calculation and basis is provided below.

The SRS Electrical Safety subject matter expert has calculated the electrical severity of this event using guidance developed by the EFCOG/DOE Electrical Safety Subgroup. The calculated severity for this event is 10 (Low Significance). This event scores as follows: Electrical

Hazard: 10 (120 volt circuit); Environmental Factor: 0 (dry); Shock Proximity Factor: 0 (insulated cables); Arc Flash: 0; Thermal Factor: 0; and Injury Factor: 1 (none). Electrical Severity=10*(1+0+0+0+0+0)*1=10.

Electrical Severity (ES) = (Electrical Hazard Factor) * (1 + Environment Factor + Shock Proximity Factor + Arc Flash Proximity Factor + Thermal Proximity Factor) * (Injury Factor)

This initial report was approved on 08/29/2011 by C.L. Jenkins, Manager, Facility Operations and Support; and by T.A. Bolton, Manager, Site Infrastructure.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? Yes
By Whom: Jenkins, C.L.
By When: 08/31/2011

Division or Project:

M&O/Infrastructure Services/Site Maintenance

Plant Area:

F

System/Building/Equipment: 717-F/HVAC

Facility Function:

Balance-of-Plant - Machine shops

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control
01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
11G--Other - Subcontractor
12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
14D--Quality Assurance - Documents and Records Deficiency
14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency

HQ Summary:

On August 22, 2011, a subcontract electrician discovered uncontrolled voltage while performing a preliminary absence of voltage check in a heating, ventilation, and air conditioning (HVAC) control panel in building 717-F. Terminals within the panel were checked using a Tegam tester and no voltage was found; however, the electrician found voltage at the top of the panel using a proximity tester. The subcontract electrician notified management and a Time Out was called. The scope of work being performed was to replace a McQuay HVAC Unit at 717-F and was controlled by a work order and a lockout. The energized line was a pass through and was not noted on any prints. The electrician was wearing the

proper personal protective equipment and was never exposed to the voltage source. All electrical work was put on hold within the barricaded area of the electrical panel. Engineering was contacted and performed a walk down to determine the source of the voltage. The electrical severity score for the lockout/tagout event involving the 120 volts discovered inside the HVAC control panel was calculated to be 10.

Similar OR Report Number:

Facility Manager:

Name	Jenkins, Claude L.
Phone	(803) 208-0777
Title	Manager, Site Facility Operations and Support

Originator:

Name	Haas, Gary M
Phone	(803) 557-4353
Title	LEAD OPERATIONS SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/25/2011	15:30 (ETZ)	Young, P.D.	IS Maint
08/25/2011	15:30 (ETZ)	Bolen, T.M.	Safety
08/25/2011	15:30 (ETZ)	Gentry, R.E.	IS VP
08/25/2011	15:30 (ETZ)	Hawver, D.	Eng
08/25/2011	15:30 (ETZ)	Mcalhaney, J.	SERB
08/25/2011	15:30 (ETZ)	Fryar, S.J.	DOE-SR
08/25/2011	16:11 (ETZ)	Scruggs, A.M.	SRSOC

Authorized Classifier(AC): Haas, Gary M. Date: 08/26/2011

7)Report Number:

[EM-SR--SRR-WVIT-2011-0007](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Savannah River Site

Facility Name:

Vitrification Facility

Subject/Title:

Established Lockout/Tagout (L/T) 200/S-11-174 Found Energized Circuit

Date/Time Discovered:

08/22/2011 15:38 (ETZ)

Date/Time Categorized:

08/22/2011 16:59 (ETZ)

Report Type:

Notification

Report Dates:

Notification	08/24/2011	11:18 (ETZ)
Initial Update		
Latest Update		

Final		
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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: After L/T 200/S-11-174 was established (replace bearings/coupling at 512-S Process Vessel Vent (PVV) Exhaust Fan #1), two wires inside the motor termination box were found energized. The energized wires were to the motor heater winding 120 VAC circuits. Determination of the L/T was performed at the Motor Control Center(lockout boundary). The motor termination box was not used as a determination point due to the wiring being shrink wrapped and sealed.

The electrical severity score of 10 (Low Significance) was calculated for this event using the guidance developed by the EFCOG/DOE Electrical Safety Subgroup. The event scores as follows: Electrical Hazard: 10(120 volt circuit); Environmental Factor: 0(dry); Shock Proximity Factor: 0(insulated cables); Arc Flash: 0; Thermal Factor: 0; and Injury Factor: 1 (none). Electrical Severity = Electrical Hazard Factor*(1+Environmental Factor+Shock Proximity Factor+Arc Flash Factor+Thermal Proximity Factor)*1 = 10*(1+0+0+0+0)*1 = 10.

Cause Description:

Operating Conditions: DWPF was operating under normal conditions.

Activity Category: Maintenance

Immediate Action(s): Stopped work on the 512-S PVV Exhaust Fan #1. Ensured work area was safe and stable. DWPF discontinued electrical L/T installations until after the fact finding is completed Tuesday 8/23/11.

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: Defense Waste Processing Facility
Plant Area: S-Area
System/Building/Equipment: Process Vessel Vent Exhaust Fan #1/512-S
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 August 22, 2011, after a Lockout/Tagout (LOTO) was established to replace bearings/coupling at 512-S Process Vessel Vent Exhaust Fan #1, two wires inside the motor termination box were found energized. The energized wires were to the motor heater winding 120 VAC circuits. Determination of the LOTO was performed at the Motor Control Center (lockout boundary). The motor termination box was not used as a determination point due to the wiring being shrink wrapped and sealed. The electrical severity score of 10 (low significance) was calculated for this event. Work was stopped on the exhaust fan. Electrical LOTO installations were discontinued until after the fact finding was completed on August 23.

Similar OR Report Number:

Facility Manager:

Name	SONNENBERG, LESLIE K
Phone	(803) 208-6022
Title	FACILTY MANAGER

Originator:

Name	GREEN, MICHAEL J.
Phone	(803) 208-3171
Title	PROGRAM MANAGER C

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/22/2011	16:59 (ETZ)	Frank Vick	Op Mgr
08/22/2011	16:59 (ETZ)	Bill Barnes	DFac Mgr
08/22/2011	17:12 (ETZ)	Steve Wilkerson	WT Mgr
08/22/2011	17:16 (ETZ)	Addie Ross	SRSOC
08/22/2011	17:23 (ETZ)	Robert Houck	DOE FR
08/22/2011	17:24 (ETZ)	Dave Sherburne	Eng Mgr

08/22/2011	17:24 (ETZ)	John Occhipinti	Eng Mgr
08/22/2011	17:32 (ETZ)	John Gall	S&H Mgr
08/22/2011	17:37 (ETZ)	Mark Sautman	DNFSB
08/22/2011	17:37 (ETZ)	Dan Burnfield	DNFSB
08/22/2011	17:38 (ETZ)	Michael Green	SIRIM
08/22/2011	17:54 (ETZ)	David Mills	SERB
08/22/2011	17:54 (ETZ)	Jackie McAlhaney	SERB

Authorized Classifier(AC):

8)Report Number: [NA--LASO-LANL-ADOADMIN-2011-0009](#) **After 2003 Redesign**
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Los Alamos National Laboratory
Facility Name: ADO Administration
Subject/Title: Arc Results From Screw Contacting Live Wire While Removing Switch Cover

Date/Time Discovered: 08/22/2011 15:25 (MTZ)

Date/Time Categorized: 08/22/2011 16:00 (MTZ)

Report Type: Notification

Report Dates:

Notification	08/24/2011	17:14 (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
Testmarc Solutions

Occurrence Description: MANAGEMENT SYNOPSIS: At 1525, on Monday, August 22, 2011, two workers were removing a cover from a pressure switch when the screw driver being used to remove the cover's capture screw contacted a metal grounded pipe resulting in an arc.

BACKGROUND: Two engineers (W1 and W2) from the Construction Management Division's Start Up and Testing Group (Start-Up) were conducting a dry run for function testing of the Radiological Laboratory, Utility and Office Building's (RLUOB) hot water system in the Central Utilities Building (CUB). Three 11 million British Thermal Unit (BTU) natural gas boilers supply hot water to heat the RLUOB. The dry run consisted of adjusting pressure switches attached to the boilers to determine if the high or low pressure switches would shut down the boiler. The boilers had been previously pre-functionally tested and have been operating for almost two years.

The workers had adjusted the first of two pressure switches on the first boiler. W1, an electrical safety officer (ESO) and the Person in Charge (PIC) for the task, was replacing the cover on the first switch after successfully testing it when W2 climbed a ladder to the second switch to adjust it. Using a non-insulated screwdriver, W2 began unscrewing the switch cover's capture screw when his screwdriver came in contact with a metal pipe and arced. He immediately stopped work, and he and W1 notified management. Electricians responded to the scene, locked and tagged the system and then determined zero voltage. The Construction Superintendent determined W1 was qualified to perform Lockout/Tagout and finish troubleshooting the switch. The electricians left to troubleshoot another priority activity. W1 determined that the energy (120V) came from crushed wiring that was in contact with the switch cover capture screw. While it is common for wiring to come into contact with switch cover capture screws in this same manner, this situation was unique in that the entire switch box that had contact with the screw was plastic. When wiring shorts against a metal enclosure, typically a breaker trips or a fuse blows. However, with the entirely plastic housing, the live energy went undetected until W1 removed the switch cover.

Cause Description:

Operating Conditions:

Does not Apply

Activity Category:

Construction

Immediate Action(s):

- The boilers were shut down
- Electricians verified zero voltage and locked and tagged the system.
- W1 and the Construction Superintendent determined the source of the arc
- Wire repairs were completed
- RLUOB ESOs released the boilers back into service.
- An extent of condition of similar switches is being conducted.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Yes.

Required: Before Further Operation? No
 By Whom: CAO-PF, CMRR
 By When: 10/06/2011

Division or Project: CMRR RLUOB

Plant Area: TA-55-440

System/Building/Equipment: RLUOB Facility Boilers

Facility Function: Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 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
 14G--Quality Assurance - Procurement Deficiency

HQ Summary: On August 22, 2011, two workers were removing a cover from a pressure switch when the screw driver being used to remove the cover's capture screw contacted a metal grounded pipe resulting in an arc. The engineers (W1 and W2) were conducting a dry run for function testing of the Radiological Laboratory, Utility and Office Building's (RLUOB) hot water system. Three boilers supply hot water to heat the RLUOB. The dry run consisted of adjusting pressure switches attached to the boilers. The workers had adjusted the first of two pressure switches on the first boiler. W1 was replacing the cover on the first switch when W2 climbed a ladder to the second switch to adjust it. Using a non-insulated screwdriver, W2 began unscrewing the switch cover's capture screw when his screwdriver came in contact with a metal pipe and arced. He immediately stopped work and management was notified. Electricians responded to the scene, locked and tagged the system and then determined zero voltage. W1 finished troubleshooting the switch. W1 determined that the energy (120V) came from crushed wiring that was in contact with the switch cover capture screw. The entire switch box that had contact with the screw was plastic. When wiring shorts against a metal enclosure, typically a breaker trips or a fuse blows. However, with the entirely plastic housing, the live energy went undetected until W1 removed the switch cover. An extent of condition of similar switches is being conducted.

Similar OR Report Number:

Facility Manager:

Name	William Wagner
Phone	(505) 664-0012
Title	Project Controls Manager

Originator:

Name	KIRSCH, MICHELLE M
------	--------------------

Phone	(505) 665-8146
Title	OCCURRENCE INVESTIGATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/22/2011	16:01 (MTZ)	Thomas Whitacre	NNSA
08/22/2011	16:20 (MTZ)	Art Trujillo	NNSA

Authorized Classifier(AC): Linda Collier Date: 08/24/2011

9)Report Number: [NA--LASO-LANL-ADOADMIN-2011-0010](#) **After 2003 Redesign**

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Los Alamos National Laboratory

Facility Name: ADO Administration

Subject/Title: Lighting Wiring Sparks During Ceiling Construction Work

Date/Time Discovered: 08/22/2011 14:00 (MTZ)

Date/Time Categorized: 08/22/2011 14:15 (MTZ)

Report Type: Notification

Report Dates:

Notification	08/24/2011	17:16 (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
Vigil Contracting

Occurrence Description: Management Synopsis:

At 1400, on August 22, 2011, two carpenters (workers) installing a ceiling at TA-55-400, encountered sparks while moving electrical armored cable whips out of their way to install uni-strut supports for a lay-in ceiling grid.

Background:

The workers had been installing ceilings in the facility for approximately two months. All circuits they had previously encountered were not energized, and they had become accustomed to working with the current electrical contractor, who was doing only non-energized work. On the day of the event, the workers began working in a Laboratory that had been wired nearly two years ago by a previous electrical contractor. They assumed circuits in the Laboratory were not energized as had been the case in the other laboratories where they had been working. However, one of the circuits to this laboratory in inverter lighting panel EHC was energized. This circuit was connected to wiring for lights to be installed. The previous contractor had safed the ends of the whip conductors with tape. When the worker moved the whip conductor, it shorted because the tape used to safe off the end of the wire had come off. Upon seeing the sparks, the workers immediately stopped work and informed management.

Cause Description:

Operating Conditions:

Does Not Apply

Activity Category:

Construction

Immediate Action(s):

- The FOD stopped work in the four laboratories that had been wired by the previous contractor and barricaded them.
- The circuit from Lighting Inverter Panel EHC was isolated, locked and tagged out.
- The FOD will commence with compensatory measures of ensuring unfinished wiring is terminated with wire nuts and circuits are locked out.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: CAO-PF, CMRR
By When: 10/06/2011

Division or Project:

CMRR RLUOB

Plant Area:

TA-55-400

System/Building/Equipment: Lighting Conduits

Facility Function:

Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)

- 07D--Electrical Systems - Electrical Wiring
- 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 August 22, 2011, two carpenters installing a ceiling at Technical Area 55-400, encountered sparks while moving electrical armored cable whips out of their way to install unistrut supports for a lay-in ceiling grid. The workers had been installing ceilings in the facility for approximately 2 months. All circuits they had previously encountered were not energized, and they had become accustomed to working with the current electrical contractor, who was doing only non-energized work. On the day of the event, the workers began working in a Laboratory that had been wired nearly 2 years ago by a previous electrical contractor. They assumed circuits in the Laboratory were not energized as had been the case in the other laboratories where they had been working. However, one of the circuits to this laboratory in inverter lighting panel EHC was energized. This circuit was connected to wiring for lights to be installed. The previous contractor had safed the ends of the whip conductors with tape. When the worker moved the whip conductor, it shorted because the tape used to safe off the end of the wire had come off. Upon seeing the sparks, the workers immediately stopped work and informed management. The Facility Operations Director stopped work in the four laboratories that had been wired by the previous contractor and barricaded them. The circuit from Lighting Inverter Panel EHC was isolated and locked and tagged out.

Similar OR Report Number:

Facility Manager:

Name	William Wagner
Phone	(505) 664-0012
Title	Project Controls Manager

Originator:

Name	KIRSCH, MICHELLE M
Phone	(505) 665-8146
Title	OCCURRENCE INVESTIGATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/22/2011	14:16 (MTZ)	Thomas Whitacre	NNSA
08/22/2011	14:35 (MTZ)	Dan Carter	NNSA

Authorized Classifier(AC): Linda Collier Date: 08/24/2011

10)Report Number: [NA--LASO-LANL-ADOADMIN-2011-0011](#) After 2003 Redesign
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Los Alamos National Laboratory
Facility Name: ADO Administration
Subject/Title: Worker Observes Spark from Exposed Electrical Wiring in Ceiling
Date/Time Discovered: 08/31/2011 15:20 (MTZ)
Date/Time Categorized: 08/31/2011 16:45 (MTZ)
Report Type: Notification
Report Dates:

Notification	09/02/2011	12:01 (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: No

Occurrence Description: MANAGEMENT SYNOPSIS: On August 31, 2011, at 1520, as a Maintenance and Site Services (MSS) carpenter removed a ceiling tile above a cubicle on the fourth floor of Technical Area 55, Building 400, he observed sparking from a wire whip containing exposed electrical wiring. The carpenter immediately set the ceiling tile on top of the ladder that was he standing on and he descended the ladder. The carpenter then notified his foreman who in turn called the MSS project superintendent. The MSS project superintendent and an electrical safety officer responded to the scene. The carpenter and the other MSS workers were removed from the work area, the condition was mitigated, and the affected work area was barricaded pending further review. Subsequent inspection of the wire whip showed that the exposed electrical wiring had arced against the flex conduit tripping the associated breaker. Three electrical wire whips were found coiled together where two of the wire whips had wire nuts affixed to them, while the third one did not. Following notification, the CMRR management paused all ceiling work on the project pending further inspection. No personnel contact with hazardous electrical energy or injuries resulted.

BACKGROUND: The MSS carpenters had been tasked to repair and replace the ceiling tiles above the cubicles starting with the fourth floor and working down to the first floor. During the pre-job briefing, the workers were instructed to: 1) pause work if they found any open J-boxes and/or exposed wiring in the ceiling area; 2) stay away from wire whips where its installation had not been completed; and 3) report any as-found condition to project supervision. According to CMRR management, a previous subcontractor had installed these wire whips, but their installation had not yet been completed.

Cause Description:

Operating Conditions:

Ceiling Tile Repair/Replacement

Activity Category:

Construction

Immediate Action(s):

1. The MSS superintendent had the condition mitigated and the affected work area barricaded pending further review.
2. The CMRR management paused all project ceiling work including other subcontractors pending further inspections and resolution of identified discrepancies.
3. All circuits that feed the cubicles on the second, third, and fourth floor were locked and tagged out.
4. The MSS management will revise the work documentation to incorporate the use of di-electric PPE for the MSS ceiling work.
5. As part of an extent of condition (EOC) review, the CMRR management has tasked the electricians and carpenters to perform room-by-room ceiling inspections to identify similar conditions and to report any discrepancies found to the electrical field engineers. The electrical field engineers will inspect, evaluate and document these discrepancies for resolution. Any similar conditions identified will be documented as part of the EOC review and included in the final occurrence report. If other conditions and/or issues are identified during these inspections, those situations will be evaluated and managed in accordance with the Laboratory reporting requirements.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

**Further Evaluation is
Required:**

Yes.
Before Further Operation? No
By Whom: CMRR & CAO-PF
By When: 10/14/2011

Division or Project: CMMR RLUOB
Plant Area: TA-55-400
System/Building/Equipment: Electrical Conduits
Facility Function: Laboratory - Research & Development
Corrective Action:
Lessons(s) Learned:

HQ Keywords: 07D--Electrical Systems - Electrical Wiring
 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 August 31, 2011, as a Maintenance and Site Services (MSS) carpenter removed a ceiling tile above a cubicle on the fourth floor of Technical Area 55, Building 400, he observed sparking from a wire whip containing exposed electrical wiring. The carpenter immediately set the ceiling tile on top of the ladder that was he standing on and he descended the ladder. The carpenter then notified his foreman, who in turn called the MSS project superintendent. The MSS project superintendent and an electrical safety officer responded to the scene. The carpenter and the other MSS workers were removed from the work area, the condition was mitigated, and the affected work area was barricaded pending further review. Subsequent inspection of the wire whip showed that the exposed electrical wiring had arced against the flex conduit tripping the associated breaker. Three electrical wire whips were found coiled together; two of the wire whips had wire nuts affixed to them, while the third one did not. Following notification, the Chemistry and Metallurgy Research Replacement (CMRR) management paused all ceiling work on the project pending further inspection. All circuits that feed the cubicles on the second, third, and fourth floor were locked and tagged out. No personnel contact with hazardous electrical energy or injuries resulted. Room-by-room ceiling inspections were conducted to identify similar conditions and discrepancies.

Similar OR Report Number:

Facility Manager:

Name	William Wagner
Phone	(505) 664-0012
Title	Project Controls Manager

Originator:

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
09/01/2011	11:55 (MTZ)	Ed Christie	NNSA
09/01/2011	11:55 (MTZ)	Tom Whitacre	NNSA

Authorized Classifier(AC): Linda Collier Date: 09/02/2011

11)Report Number: [NA--PS-BWP-PANTEX-2011-0056](#) **After 2003 Redesign**

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Pantex Plant

Facility Name: Pantex Plant

Subject/Title: Laser Gas Sampling System (LGSS) Terminal Block Failure

Date/Time Discovered: 08/13/2011 09:45 (CTZ)

Date/Time Categorized: 08/13/2011 11:38 (CTZ)

Report Type: Notification

Report Dates:

Notification	08/17/2011	07:54 (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: 5) Provide Feedback and Continuous Improvement

Subcontractor Involved: No

Occurrence Description: On Saturday, 08/13/11, an Electronic Technician was evaluating a capacitor bank of the Laser Gas Sampling System (LGSS) power supply under work package #29622194, and following the manufacturer’s (LSAG) technical representative diagnostic advice by telephone. The manufacturer requested the technician to check the voltage of the capacitor bank for stability of charge. The capacitor bank was charged using the LGSS circuits. The technician donned appropriate personal protective equipment (PPE) (voltage rated gloves, face shield, jacket) and using one hand, approached a terminal block with Fluke model 87 probes. The terminal strip failed producing an arc and unexpected dispersion of pieces. The capacitor bank is an assembly of eight capacitors with a charge of 350 volts, 5600 micro-farads each, total of 2744 Joules (approximately 1 watt-

hour). The terminal strip was destroyed. The capacitor bank has been removed from the unit for inspection.

There were no injuries to personnel or damage to equipment or the environment as a result of the event. Damage to the LGSS is limited to the terminal block. The power supply has been locked pending further investigation.

Cause Description:

Operating Conditions: Operational

Activity Category: Maintenance

Immediate Action(s): Electronic Technician placed the LGSS in a safe and stable condition.

Critique was conducted on 08/15/11 and the event remained categorized as 2C(2) SC3, 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).

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Maintenance

Plant Area: Zone 12 South MAA

System/Building/Equipment: Laser Gas Sampling System

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

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 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 August 13, 2011, an electronic technician was evaluating a capacitor bank of the Laser Gas Sampling System (LGSS) power supply when a terminal block failed producing an arc and unexpected dispersion of pieces. The technician was following the manufacturer's technical representative diagnostic advice by telephone and was checking the voltage of the capacitor bank for stability of charge. The capacitor bank was charged using the LGSS circuits. The technician donned appropriate personal protective equipment (voltage rated gloves, face shield, jacket)

and using one hand, approached the terminal block with the probes of a Fluke model 87. That's when the terminal block failed. The technician then placed the LGSS in a safe and stable condition. The capacitor bank is an assembly of eight capacitors with a charge of 350 volts, 5,600 microfarads each, total of 2,744 Joules (approximately 1 watt-hour). The capacitor bank was removed from the unit for inspection. There were no injuries or damage to equipment other than the LGSS terminal block, which was destroyed. The power supply has been locked out pending further investigation.

Similar OR Report Number:

Facility Manager:

Name	Brent Henderson
Phone	(806) 477-3213
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
08/13/2011	11:38 (CTZ)	Brian Jones	PXSO
08/13/2011	11:38 (CTZ)	Rich Hopson	B&W

Authorized Classifier(AC): Don Gerber Date: 08/16/2011

12)Report Number: [NA--PS-BWP-PANTEX-2011-0059](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Pantex Plant

Facility Name: Pantex Plant

Subject/Title: Damaged De-energized Electrical Conductor

Date/Time Discovered: 08/24/2011 14:20 (CTZ)

Date/Time Categorized: 08/24/2011 15:09 (CTZ)

Report Type: Notification

Report Dates:

Notification	08/29/2011	17:36 (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 to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 3 occurrence)

Cause Codes:

ISM:

Subcontractor Involved: Yes

Midwest Fabrication subcontractor, Running D

Occurrence Description: On Wednesday, August 24, 2011, at around 1400, a B&W Pantex General subcontractor, Midwest Fabrication subcontractor, Running D, using a small excavator, came into contact with a de-energized buried conductor inside a steel conduit covered by an outer, weather proof, plastic coating. The outer plastic coating was damaged, but the conduit and internal conductor were not affected.

At 1509, management made the decision to categorize the event as a management concern with a significance category (SC) 3. An event critique concerning the event was conducted on August 25, 2011, at 1400.

There was no additional damage to other equipment, facilities, any threat or injury to personnel, nor any threat to security or the environment as a result of this event.

Cause Description:

Operating Conditions: The facility was operating normally

Activity Category: Construction

Immediate Action(s):

1. Project reviewed and shut down.
2. Midwest Fabrication installed area barricades.
3. Project Subcontractor Technical Representative (PSTR) made appropriate notifications.
4. PSTR escorted Subcontractor equipment operator and spotter for BAT.
5. Event Critique scheduled and conducted 08-26-11.

NNSA Duty Officer, Operations Center, and Manufacturing Management was notified.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

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

Division or Project: Projects Division
Plant Area: Zone 12 South MAA
System/Building/Equipment: Zone 12 South
Facility Function: Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control
 05D--Mechanical/Structural - Mechanical Equipment Failure/Damage
 08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues
 11G--Other - Subcontractor
 12C--EH Categories - Electrical Safety
 14D--Quality Assurance - Documents and Records Deficiency
 14E--Quality Assurance - Work Process Deficiency
 14G--Quality Assurance - Procurement Deficiency

HQ Summary: On August 24, 2011, a B&W Pantex General subcontractor was using a small excavator that came into contact with a de-energized buried conductor inside a steel conduit covered by an outer, weather proof, plastic coating. The outer plastic coating was damaged, but the conduit and internal conductor were not affected. There was no additional damage to other equipment or facilities, any threat or injury to personnel, nor any threat to security or the environment as a result of this event. The project was reviewed and shut down and barricades were installed. An event critique was conducted.

Similar OR Report Number:

Facility Manager:

Name	Marlin Conner
Phone	(806) 477-7199
Title	Projects Management Department Manager

Originator:

Name	MCNABB, RON O
Phone	(806) 477-6855
Title	SUPPORT REPRESENTATIVE

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
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08/24/2011	15:09 (CTZ)	John Thurston DOE FR	PXSO
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Authorized Classifier(AC): George Weathers **Date:** 08/29/2011

13)Report Number: [NA--SS-SNL-CASITE-2011-0004](#) **After 2003 Redesign**
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Sandia National Laboratories - Livermore
Facility Name: SNL California Site
Subject/Title: Contractor Cuts into Energized Lighting Circuit in Conduit During Re-Model Project at Bldg. B910
Date/Time Discovered: 08/10/2011 12:30 (PTZ)
Date/Time Categorized: 08/10/2011 14:21 (PTZ)
Report Type: Notification
Report Dates:

Notification	08/11/2011	14:59 (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: 3) Develop and Implement Hazard Controls
 4) Perform Work Within Controls

Subcontractor Involved: Yes
 Clean Harbors Environmental Services

Occurrence Description: At approximately 1230 hours, on August 10, 2011, a contractor working on a re-model project in B910, Lab 310, cut into an electrical conduit containing a live lighting circuit. No injuries resulted. The contractor immediately stopped work when a spark was noticed. The contractor was on a manlift using a reciprocating saw tool (sawzall) to cut and remove ceiling sheetrock when the incident occurred. The contractor had cut about 18 inches (overhead) into the sheet rock, then began a slight turn to the right when the saw blade cut into the lighting conduit causing a short to ground. The lighting circuit was single phase 277 VAC. The contractor was wearing hard hat, eyeglasses, harness and nitrile gloves covered by work gloves.

Electrical Severity Calculation:
Severity Index is 550 as follows: Electrical Hazard Factor - 50 (277 VAC);
Environment Factor: 0 (Dry conditions); Shock Proximity Factor: 10
(Inside Prohibited Approach Boundary); Arc Flash Proximity Factor: 0
(outside Flash Protection Boundary); No PPE Mitigations; Injury Factor: 1
(no injury).

This number indicates a "medium" severity event.

Cause Description:

Critique/Fact Finding Performed: 8/10/11

SNL Facilities will remove the electrical scope from the contractor's work.
A RCA Team will be formed and will complete their analysis within 45
days of Categorization.

Operating Conditions:

Re-Model Construction

Activity Category:

Construction

Immediate Action(s):

Contractor stopped work. Notifications to SNL/CA POC. Work Pause
Initiated.

FM Evaluation:

EOC # 21891

DOE Facility Representative

Input:

DOE Program Manager

Input:

**Further Evaluation is
Required:**

Yes.
Before Further Operation? No
By Whom: Causal Analysis Team
By When: 09/23/2011

Division or Project:

8000/B910/310 Lab Demolition

Plant Area:

Other

System/Building/Equipment:

277VAC Single Phase Lighting Circuit/ Bldg. B910 Rm. 310 Lab

Facility Function:

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

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

07D--Electrical Systems - Electrical Wiring
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 August 10, 2011, a contractor working on a re-model project in B910,
Lab 310, cut into an electrical conduit containing a live lighting circuit.
The contractor immediately stopped work when a spark was noticed. The
contractor was on a manlift using a reciprocating saw tool (sawzall) to cut

and remove ceiling sheetrock when the incident occurred. The contractor had cut about 18 inches overhead into the sheet rock, then began a slight turn to the right when the saw blade cut into the lighting conduit causing a short to ground. The lighting circuit was single phase 277 VAC. The contractor was wearing a hard hat, eyeglasses, harness and nitrile gloves covered by work gloves. No injuries resulted. The Electrical Severity Calculation Severity Index is 550 which is a medium severity event. Work was stopped and notifications were made.

Similar OR Report Number:**Facility Manager:**

Name	Bob Carling
Phone	(925) 294-2206
Title	8300 Center Director

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
08/10/2011	12:44 (PTZ)	Jeff Irwin, FR	DOE/SSO
08/10/2011	12:52 (PTZ)	EOC	4136
08/10/2011	14:21 (PTZ)	Bob Carling	8300

Authorized Classifier(AC): John Garcia Date: 08/11/2011

14)Report Number:

[SC--ASO-ANLE-ANLEFMS-2011-0015](#) After 2003 Redesign

Secretarial Office:

Science

Lab/Site/Org:

Argonne National Laboratory East

Facility Name:

Facility Management Services

Subject/Title:

Degradation of Office Cubicle Wall Electrical Wire Insulation Results in Induced Voltage and Shock

Date/Time Discovered:

08/31/2011 14:30 (CTZ)

Date/Time Categorized:

08/31/2011 15:50 (CTZ)

Report Type:

Notification

Report Dates:

Notification	09/03/2011	08:21 (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 to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 3 occurrence)

Cause Codes:

ISM:

Subcontractor Involved: No

Occurrence Description: On Tuesday, August 30, an employee in Building 201, the DOE, Argonne, and UC Administration Building, was pushing several communication and data cables against a cubicle wall panel when the individual's right hand brushed against the metal baseplate resulting in a tingling feeling in the fingertips. The building manager was informed by email by the employee that the bottom cubicle panels had some electricity running through it which could lead to a little shock. The email was forwarded to Facilities Management & Services Division maintenance personnel. Upon investigation by the maintenance organization on August 31, voltage measurements did detect between 24 and 50 volts at various locations on metal surfaces of the cubicle wall.

Cause Description:

Operating Conditions: Indoor location in an office environment

Activity Category: Maintenance

Immediate Action(s): Upon noting the voltage readings, the employee was referred to and evaluated by Argonne Medical and returned to work with no injury.

The power to the panel was secured. The wiring harness receiving incoming power from a permanent wall receptacle and line cord was removed from the cubicle panel. Examination showed slight damage to the primary insulation on one of the 120 volt AC conductors, resulting in induced voltage onto the nearby metallic case that houses the incoming conductors. The harness, the line cord, and the receptacle plug were replaced and retained for investigation. Subsequent measurements confirmed zero voltage on the metallic baseplate and other metal parts of the cubicle wall.

An investigation into the incident was initiated.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: Yes.
 Before Further Operation? No
 By Whom: FMS Division
 By When:
Division or Project: Facilities Management & Services (FMS) Division
Plant Area: 200 Area
System/Building/Equipment: Office Landscape/201/Cubicle Wall
Facility Function: Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

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: On August 30, 2011, an employee in Building 201, the Administration Building, was pushing several communication and data cables against a cubicle wall panel when the individual's right hand brushed against the metal baseplate resulting in a tingling feeling in the fingertips. The employee informed the building manager by email that the bottom cubicle panels had some electricity running through them, which could lead to a little shock. The email was forwarded to Facilities Management & Services Division maintenance personnel. Upon investigation by the maintenance organization on August 31, voltage measurements did detect between 24 and 50 volts at various locations on metal surfaces of the cubicle wall. The power to the panel was secured. The wiring harness receiving incoming power from a permanent wall receptacle and line cord was removed from the cubicle panel. Examination showed slight damage to the primary insulation on one of the 120-volt AC conductors, resulting in induced voltage onto the nearby metallic case that houses the incoming conductors. The harness, the line cord, and the receptacle plug were replaced and retained for investigation. Subsequent measurements confirmed zero voltage on the metallic baseplate and other metal parts of the cubicle wall. The employee was referred to and evaluated by Argonne Medical and returned to work with no injury. An investigation into the incident was conducted.

Similar OR Report Number:

Facility Manager:

Name	Stine, G. Y.
Phone	(630) 252-8930
Title	Director, Facilities Mgmt. & Services Division

Originator:

Name	MEREDITH, STUART G
------	--------------------

Phone	(630) 252-6312
Title	PAAA COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/31/2011	15:45 (CTZ)	G. Y. Stine	ANLE-FMS
08/31/2011	16:15 (CTZ)	J. Kester	ANLE-PMA
08/31/2011	16:30 (CTZ)	J. Houck	DOE-ASO

Authorized Classifier(AC):

15)Report Number: [SC--BSO-LBL-OPERATIONS-2011-0016](#) After 2003 Redesign

Secretarial Office: Science

Lab/Site/Org: Lawrence Berkeley Laboratory

Facility Name: Operations Division

Subject/Title: LOTO Permit Violation at B90 - No Exposures, No Injuries

Date/Time Discovered: 08/23/2011 10:23 (PTZ)

Date/Time Categorized: 08/23/2011 14:39 (PTZ)

Report Type: Notification

Report Dates:

Notification	08/25/2011	15:35 (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: Yes
PDE (Pacific Data Electric, Inc.)

Occurrence Description: Summary:
On 8-19-11 the Construction Manager and subcontractor for the B90 renovation project mistakenly believed they were issued a valid LOTO permit and began electrical work before the finalized Permit was issued.

There were no injuries, no contact with, nor exposure to hazardous energy. All other expected LOTO procedures and practices were followed.

Event Description:

On 08/10/2011, a Pre-LOTO (PL-1570) request was made by subcontractor PDE (Pacific Data Electric, Inc.) for Building 90 renovation project work at east end of the third floor. On 08/17/2011, after Facilities personnel completed the pre-LOTO review, the Permit point of contact (POC) initiated the LOTO Permit request. Facilities High Voltage Supervisor reviewed and approved the LOTO Permit #LP-1570 on 08/18/2011. Per LBNL requirements, the Permit can only be issued after it has received final review and approval from an EH&S Electrical Safety Engineer. The POC did not fully understand this requirement and thought that the Facility Manager's signature constituted an approved Permit. The POC printed out the permit application form and gathered the subcontractor electrician and the LBNL electrician for a pre-LOTO briefing. During the briefing, both electricians commented that the permit did not look right and was different from other LOTO Permits they had used in the past. They also noted that there was no signature page for them to sign. The POC created a signature page, which everyone signed. The electricians proceeded to execute the LOTO and completed the work without incident. Later that afternoon, the EH&S Electric Safety Engineer approved LP-1570, unaware that the LOTO work had already been done.

Subcontractor performing LOTO without an approved LOTO Permit is a violation of LBNL energy control procedures.

Cause Description:

Operating Conditions:

Indoors, lighted, dry

Activity Category:

Construction

Immediate Action(s):

As an immediate corrective action, the EH&S electric safety engineer has revised the automated emails so that each one will begin with the statement "NOTICE- THIS IS NOT AN APPROVED PERMIT."

FM Evaluation:

-LBNL Facilities had already placed the first lock and an administrative lock was in place before the commencement of work.

- Both the LBNL electrician and the PDE electrician were experienced with LBNL LOTO Permits

- "THIS IS NOT AN APPROVED PERMIT" was printed on the front page of the permit application form that was used as a Permit in this incident.

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 Division
Plant Area: B90
System/Building/Equipment: Building 90 Renovation Project
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)
 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 August 19, 2011, the Construction Manager and subcontractor for the Building 90 (B90) renovation project mistakenly believed they were issued a valid Lockout/Tagout (LOTO) permit and began electrical work before the finalized Permit was issued. There were no injuries, no contact with, nor exposure to hazardous energy. All other expected LOTO procedures and practices were followed. On August 17, after Facilities personnel completed the pre-LOTO review, the Permit point of contact (POC) initiated the LOTO Permit request. Facilities High Voltage Supervisor reviewed and approved the LOTO Permit #LP-1570 on August 18. Per Lawrence Berkeley National Laboratory (LBNL) requirements, the Permit can only be issued after it has received final review and approval from an Electrical Safety Engineer. The POC did not fully understand this requirement and thought that the Facility Manager's signature constituted an approved Permit. The POC printed out the permit application form and gathered the subcontractor electrician and the LBNL electrician for a pre-LOTO briefing. During the briefing, both electricians commented that the permit did not look right and they also noted that there was no signature page for them to sign. The POC created a signature page, which everyone signed. Later that afternoon, the Electric Safety Engineer approved LP-1570, unaware that the LOTO work had already been done.

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
08/23/2011	11:08 (PTZ)	Kevin Hartnett	BSO
08/23/2011	11:08 (PTZ)	Mary Gross	BSO

Authorized Classifier(AC):

16)Report Number: [SC--BSO-LBL-OPERATIONS-2011-0017](#) After 2003 Redesign
Secretarial Office: Science
Lab/Site/Org: Lawrence Berkeley Laboratory
Facility Name: Operations Division
Subject/Title: Locks Applied Prior to Permit Issuance at B84 - No Exposure, No Injuries
Date/Time Discovered: 08/29/2011 16:02 (PTZ)
Date/Time Categorized: 08/29/2011 16:45 (PTZ)
Report Type: Notification
Report Dates:

Notification	08/31/2011	20:12 (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: Yes
 Pacific Data Electric, Inc. (PDE)
Occurrence Description: On 08/27/2011, a subcontractor electrician applied a lock to a switch panel in Building 84 prior to the issuance of a LOTO Permit. There were no exposures nor injuries as a result.

On 08/27/2011, an LBNL Facilities Project Manager discovered that there were locks on a switch panel (panel B) without an approved LOTO Permit. The Pacific Data Electric, Inc. (PDE) electrician was working on the B84-

359 30-amp emergency circuit replacement project for a genome sequencer. A LOTO Permit (#1510) was issued to install switches in Panel B. Energy to the feeder panel A was properly locked out according to the Permit requirements, with a first lock applied by LBNL personnel. The PDE electrician then placed additional LOTO locks to switches on panel B, possibly in anticipation of future work in panel B that would require the additional locks. He completed the work under Permit#1510 without starting the anticipated future work on Panel B. After completion of the work in panel B under Permit#1510, locks on panel A were removed and the panel energized. The locks on panel B remained and were not removed, even though there was no new Permit, nor a revision to the Permit #1510 issued. No LBNL administrative first lock was applied.

Cause Description:

Operating Conditions: Indoors, lighted, dry

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

Immediate Action(s): Facilities held a stand down meeting on 08/30/2011.

FM Evaluation: The additional locks remain on the circuit breakers pending application of an additional LOTO Permit.

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: B84

System/Building/Equipment: B84 Electric Switch Panel

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)
11G--Other - Subcontractor
12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
14D--Quality Assurance - Documents and Records Deficiency
14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency

HQ Summary: On August 27, 2011, a subcontractor electrician applied a lock to a switch panel in Building 84 before the Lockout/Tagout (LOTO) Permit was

issued. A LBNL Facilities Project Manager had discovered that there were locks on a switch panel (panel B) without an approved LOTO Permit. The electrician was working on the B84-359 30-amp emergency circuit replacement project for a genome sequencer. A LOTO Permit (#1510) was issued to install switches in Panel B and energy to feeder Panel A was properly locked out according to the permit requirements, with a first lock applied by LBNL personnel. The subcontractor electrician then placed additional LOTO locks to switches on Panel B, possibly in anticipation of future work in Panel B that would require the additional locks. He completed the work under Permit#1510 without starting the anticipated future work on Panel B. After completion of the work in Panel B under Permit#1510, locks on Panel A were removed and the panel was energized. The locks on Panel B remained and were not removed, even though there was no new permit, nor was there a revision to Permit #1510. No LBNL administrative first lock had been applied. The additional locks remain on the circuit breakers pending application of an additional LOTO permit. Facilities management held a stand down meeting. There were no electrical exposures or injuries as a result of this incident.

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
08/29/2011	16:50 (PTZ)	Kevin Hartnett	BSO
08/29/2011	16:50 (PTZ)	Mary Gross	BSO

Authorized Classifier(AC):

17)Report Number: [SC-ORO--ORNL-X10EAST-2011-0001](#) After 2003 Redesign
Secretarial Office: Science
Lab/Site/Org: Oak Ridge National Laboratory
Facility Name: ORNL East Complex
Subject/Title: Energized Electrical Cable Inadvertently Severed at Building 5300
Date/Time Discovered: 08/25/2011 09:25 (ETZ)
Date/Time Categorized: 08/25/2011 19:20 (ETZ)

Report Type: Notification

Report Dates:

Notification	08/29/2011	16:37 (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
Optimech LLC.

Occurrence Description: On August 25, 2011, an approved contract with defined scope of work was being performed by a subcontractor in Building 5300 North. The scope of work involved the removal of part of a wall constructed of metal studs and drywall board. Drywall was removed exposing metal studs and metal clad (MC) electrical cables.

At approximately 0925 hours, a subcontractor cut an energized four conductor MC cable, that he thought was de-energized, using a pair of non-voltage rated lineman pliers. All power in the area was lost and emergency lighting operated as designed. Work was immediately stopped and the Facility Supervisor contacted the subcontractor management, ORNL management, and the Laboratory Shift Supervisor (LSS).

Subsequent to the critique of the event, it was categorized as a 2C(2) occurrence, "Unexpected Discovery of an Uncontrolled Hazardous Energy Source."

There were no injuries to personnel as a result of this activity.

Cause Description:

Operating Conditions: Normal

Activity Category: Construction

Immediate Action(s): Work was stopped and ORNL management was notified of the event. The cable was placed in a safe configuration and power was restored to the area at 0953 hours.

A critique was conducted and subsequently the event was categorized as a 2C(2) occurrence "Unexpected Discovery of an Uncontrolled Hazardous Energy Source."

All work was stopped until after the critique. Management conducted an all hands meeting with subcontractor personnel to discuss the circumstances surrounding the event. Work activities resumed at 1320 hours.

FM Evaluation: The Facilities Management Division will evaluate the circumstances around the event and implement actions as appropriate.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: Steffon Craig Riser
By When: 10/11/2011

Division or Project: Facilities Management Division

Plant Area: Building 5300

System/Building/Equipment: Building 5300

Facility Function: Balance-of-Plant - Offices

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control
01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)
01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other)
07C--Electrical Systems - Power Outage
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
14D--Quality Assurance - Documents and Records Deficiency
14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency

HQ Summary:

On August 25, 2011, while performing an approved contract with defined scope of work in Building 5300 North, a subcontractor severed an energized electrical cable. The scope of work involved removing part of a wall that was constructed of metal studs and drywall board. Drywall had been removed and exposed the metal studs and the metal clad (MC) electrical cables. The subcontractor then cut the energized four conductor

MC cable with a pair of non-voltage rated lineman pliers. He believed that the cable was de-energized. All power in the area was lost and emergency lighting operated as designed. Work was immediately stopped and the Facility Supervisor contacted the subcontractor management, Oak Ridge National Laboratory management, and the Laboratory Shift Supervisor. All work was stopped until after the critique. There were no injuries to personnel as a result of this activity.

Similar OR Report Number:

Facility Manager:

Name	Steffon Craig Riser
Phone	(865) 574-4243
Title	Facility Complex Manager

Originator:

Name	BAXTER, CHARLES PHIL
Phone	(865) 576-8361
Title	PAAA ASSISTANT

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/25/2011	19:20 (ETZ)	Lab Shift Superintendent	ORNL LSS
08/25/2011	20:31 (ETZ)	Michele Branton	DOE ORNL
08/25/2011	20:31 (ETZ)	Johnny Moore	DOE ORNL

Authorized Classifier(AC):

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