



Office of Health, Safety and Security



Monthly Analysis of Electrical Safety Occurrences

July 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 twelve electrical safety occurrences reported in July, compared to sixteen occurrences reported in June. Although the number of occurrences decreased, the total number of electrical shocks remained the same at five. Also in July, there was a reduction in the number of electrical intrusion occurrences while the number of occurrences involving hazardous energy control remained the same at three. Although the number of hazardous energy control occurrences has stayed relatively low, the same types of problems continue to occur (e.g., not hanging locks and tags or not following hazardous energy control procedure steps). The electrical severity index for the DOE complex has decreased for two consecutive months.

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 occurrence reports is provided in Attachment 2.

Electrical Shock

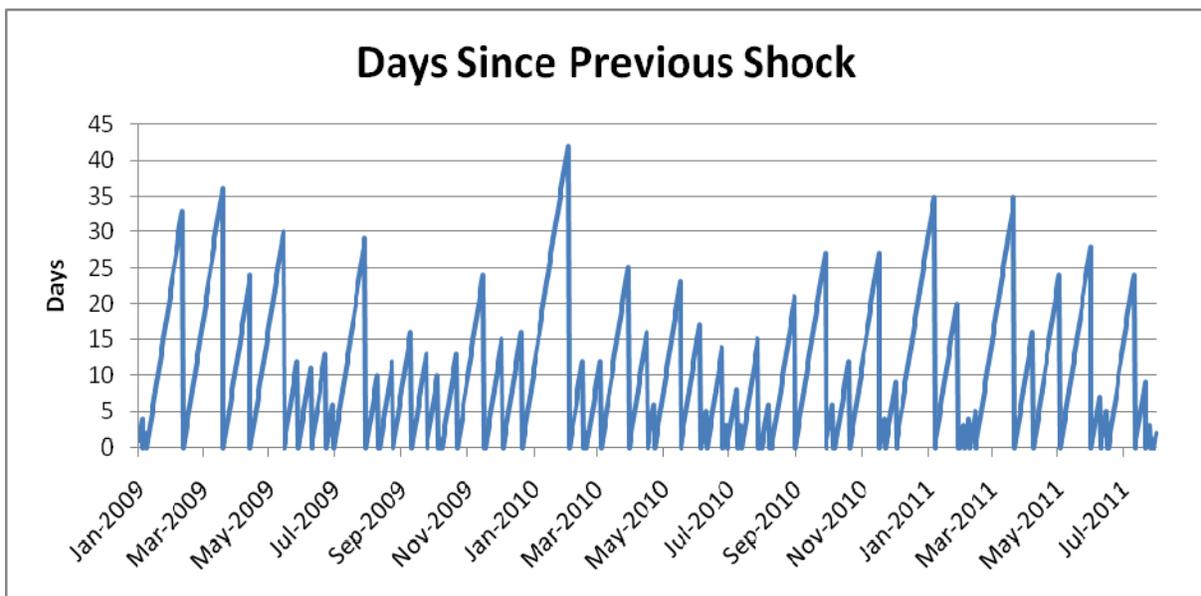
There were five occurrences in July that resulted in an electrical shock. Two of the shocks were deemed to be minor and the other three were related to equipment problems and grounding. In most cases, these types of shocks can be prevented. These occurrences are summarized below.

1. A floor cleaning service subcontract employee received a shock to his left hand while operating a floor buffer. The employee had applied a solution of hot water and a wax

stripping chemical to the tile to loosen the wax. When he touched a metal toggle switch to reduce the speed of the buffing machine, he felt a shock and released the power kill switch with his right hand. He unplugged the power cord and notified his supervisor. An inspection and test of the electrical outlet and circuit found no deficiencies.

2. While performing an insulation resistance test on an electrical production part using a tester, an electrical engineer received a minor shock when the engineer grabbed the part and a fixture. The engineer and a co-worker immediately shut down the equipment, locked and tagged it out, and contacted their management.
3. While disconnecting a quick disconnect plug for a heating tape an employee received an electrical shock, when the plug failed. The employee felt a "light buzz" in a finger, when the finger grazed an energized wire that had slipped from the shielded holder of the plug. The equipment was shut down.
4. A worker felt an electrical shock while connecting a fiber optic cable to an energized trigger box. Upon connecting the optical fiber, the trigger box fired through an external load. The worker happened to be touching another piece of equipment at the time the trigger box fired and therefore, the shock went hand-to-hand. The equipment, which was not grounded, was made safe and the worker was not injured.
5. An ion source engineer received a shock while performing helium leak tests on a high voltage source (i.e., Electron Cyclotron Resonance Charge Breeder). At the time of the incident, the engineer was using a Tygon line connected to a helium gas cylinder with a metal Swagelok fitting and was holding the fitting while spraying helium around a Lexan flange through which a Polyflow cooling line into the source. A spark jumped from the Polyflow tubing to the Swagelok fitting and to the right index finger, and likely to the grounded vacuum line a short distance away.

The following chart shows the number of days since the previous electrical shock for the DOE complex. The present interval is 2 days. The longest interval was 41 days in 2010.



Electrical Intrusions

In July there was only one electrical intrusion occurrence. A roofing subcontractor was conducting a demolition and repair job on a section of roof directly adjacent to a rigid metal conduit riser that connected to a weather proof electrical junction box, which housed an energized photo cell. The job scope did not include lockout/tagout of the photo cell because the work was not anticipated to disturb the photo cell, conduit and/or connections. While using an axe to remove roofing and flashing on the roof, the subcontractor either struck or bumped the photo cell electrical junction box, causing the internal photo cell switch to touch the junction box, causing a “popping noise” and a temporary electrical arc. The arc caused the face of the photo cell cover to be “blown off” the junction box. The work was stopped. Electrical maintenance personnel traced the circuit to the photo cell and performed a lockout/tagout.

Hazardous Energy Control

In July there were three reported occurrences involving lockout/tagout (LOTO) issues. These occurrences are summarized below.

1. Two maintenance and utility workers were working on an air conditioning unit. The first worker followed the LOTO procedures in correctly isolating the electrical equipment. The second worker did not follow the LOTO procedure by not placing his personal LOTO lock/tag on the equipment before assisting with the work activity. The system/equipment had been safely isolated by the first worker, which included a zero energy check; however, the second worker is required to affix his own lock/tag before working on the same electrical equipment.
2. A maintenance and utility employee was performing preventative maintenance work and during the LOTO process to de-energize the equipment, the employee did not complete all the required steps of the LOTO procedure. The procedure requires the employee to verify his test instrument (i.e. voltage meter) as operational both before and after use. The employee performed a function test with his voltage meter, and then verified that the equipment was not energized, but did not re-verify the function test with his voltage meter.
3. Workers were replacing an exhaust fan in an on-site apartment and the wall switch in the kitchen, which provided power to the exhaust fan, was used as the disconnecting means and LOTO. After the work was completed, it was realized that there was a second wall switch that provided power to the fan in a parallel configuration with the switch used for the LOTO. Investigators confirmed that the single fan served two areas in the apartment through common ductwork (the kitchen area and the bathroom). They also confirmed that the fan received power through two switches in parallel (not a 3-way circuit). The bathroom wall switch was not part of the LOTO.

Electrical Near Miss

In July there were five occurrences that were considered to be an electrical near miss. Two of these occurrences were previously discussed (electrical shock #3 and the electrical intrusion). The other three near-miss occurrences are summarized below.

1. When an operator switched a liquid observation well van from battery power to external power, an electrical spark occurred from an open junction box that contained loose wires, tripping a ground-fault circuit interrupter. An extension cord from an external power source (building) was plugged into the van to provide 110-volt electrical power and when the van was switched from battery power to external power via a control box within the van, the electrical spark occurred.
2. Personnel, who were working in the area of a switchgear panel, found a panel cover lying on the ground. The area was secured to prevent access to the energy source and the switchgear was de-energized and inspected. Investigators found that improper fasteners had been used to attach the panel cover and these fasteners had failed under high wind conditions. The correct fasteners were installed and system was restored to normal operation.
3. While electricians were walking down a demolition job, they discovered a portion of conduit that another crew had partially removed. There were coiled wires hanging from the end of the conduit. When the electricians uncoiled the wires to obtain wire number identifications, the end of one of the wires touched metal and tripped a circuit breaker. The electricians donned dielectric gloves and secured the wires with electrical tape to place them in a safe configuration.

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

Number of Occurrences	Involving:	Last Month
5	Electrical Shocks	5
0	Electrical Burns	1
3	Hazardous Energy Control	3
1	Inadequate Job Planning	1
1	Inadvertent Drilling/Cutting of Electrical Conductors	3
0	Excavation of Electrical Conductors	0
0	Vehicle Intrusion of Electrical Conductors or Equipment	1
5	Electrical Near Misses	5
6	Electrical Workers	5
6	Non-Electrical Workers	11
3	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”:

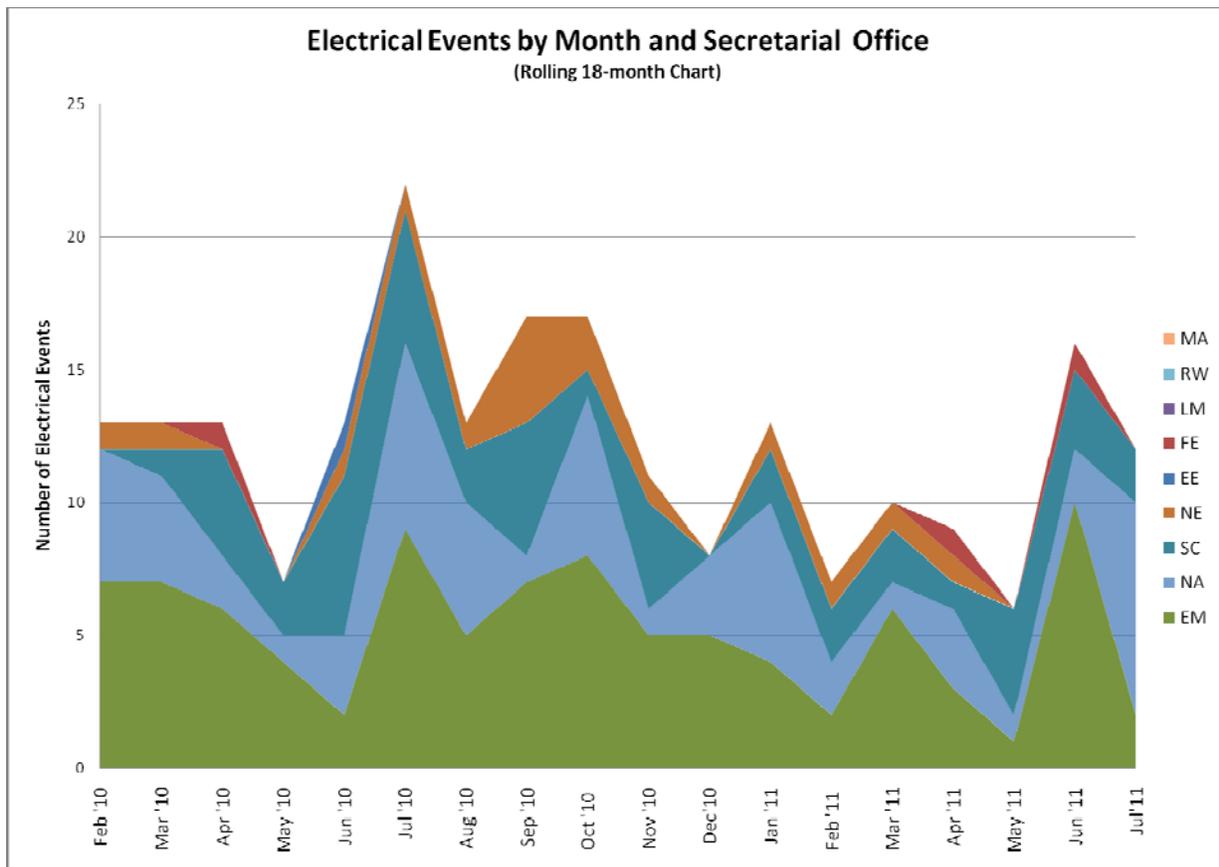
01K – Lockout/Tagout Electrical, 01M - Inadequate Job Planning (Electrical), 08A – Electrical Shock, 08J – Near Miss (Electrical), 12C – Electrical Safety Occurrence report NA--LSO-LLNL-LLNL-2011-0037 was submitted as a Significance Category R report; however, the report included two recent LOTO occurrences, which do not meet the ORPS definition for a recurring report. Therefore, both of these occurrences were included in the number count and the analysis for this month.

Below is the current summary of the electrical safety occurrences for CY 2011:

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
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	73 (avg. 10.4/month)	19	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 slightly from last month’s average of 10.2 occurrences.

The following chart shows the distribution of electrical safety occurrences by secretarial office. As can be seen, National Nuclear Security Administration sites were the largest contributor. The Office of Energy Efficiency and Renewable Energy last reported in June 2010.

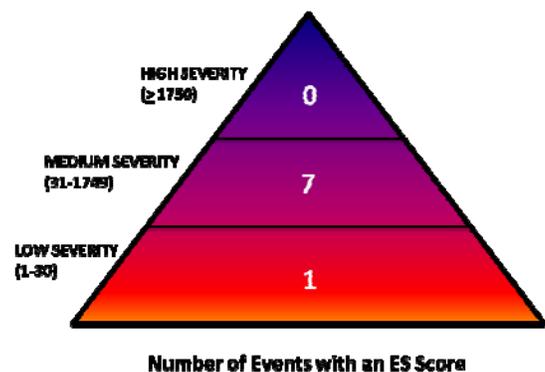


Electrical Severity

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.

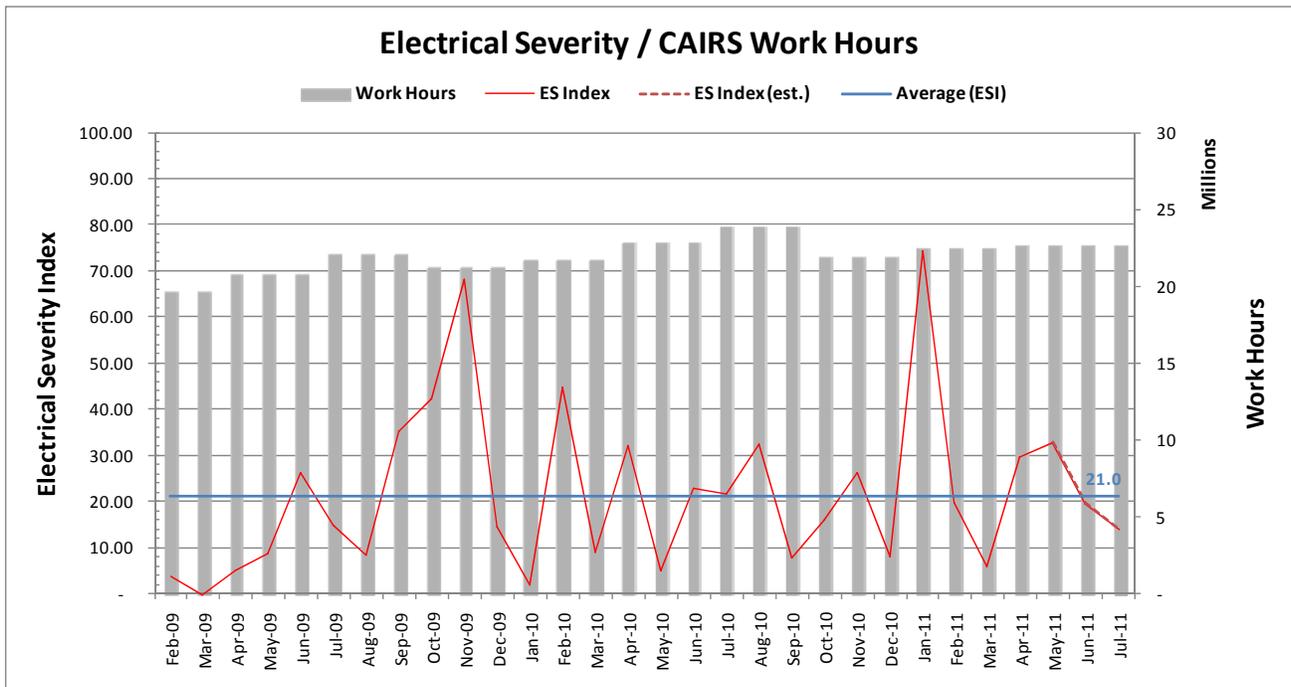
Electrical Severity Scores

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. Four of the electrical occurrences this month did not have an Electrical Severity (ES) score. The other eight occurrences are distributed as shown in the triangle, with the highest ES score being 630. 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 has decreased over that past two months.



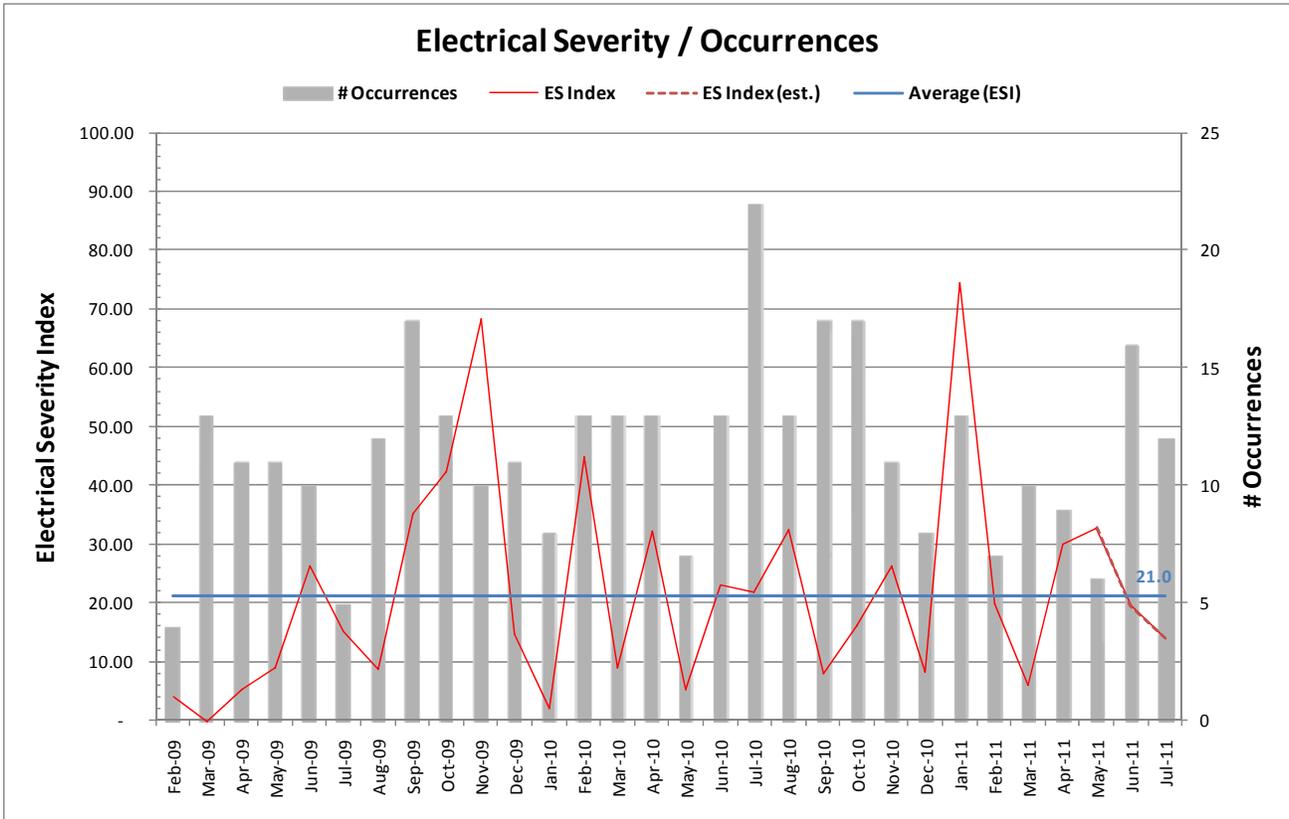
Note: An estimated ESI is calculated until accurate CAIRS man-hours are available. The chart is updated monthly.

Category	June	July	Δ
Total Occurrences	16	12	-4
Total Electrical Severity	2,211	1,578	-633
Estimated Work Hours	22,631,855* (22,631,855)	22,629,691	-2,164
ES Index	19.54* (19.54)	13.95	-5.59
Average ESI	21.3	21.0	-0.3

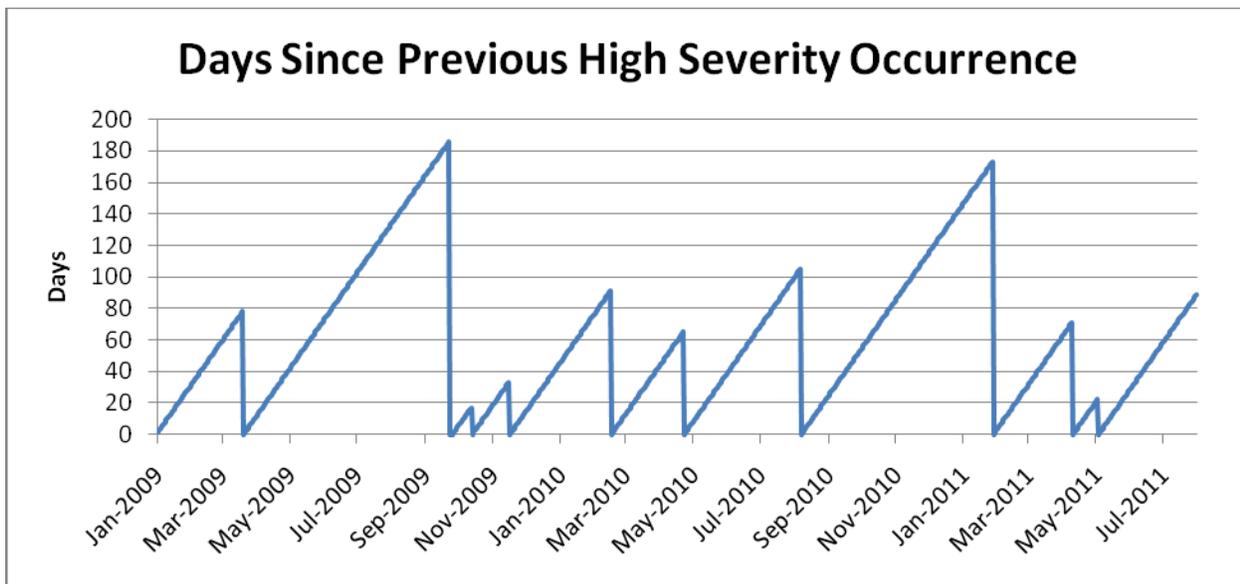
* These are estimated CAIRS work hours for June and ES Index based on the estimated hours. The estimated hours and ES Index based on the estimated hours (as reported in June) are shown below in parentheses.

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

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



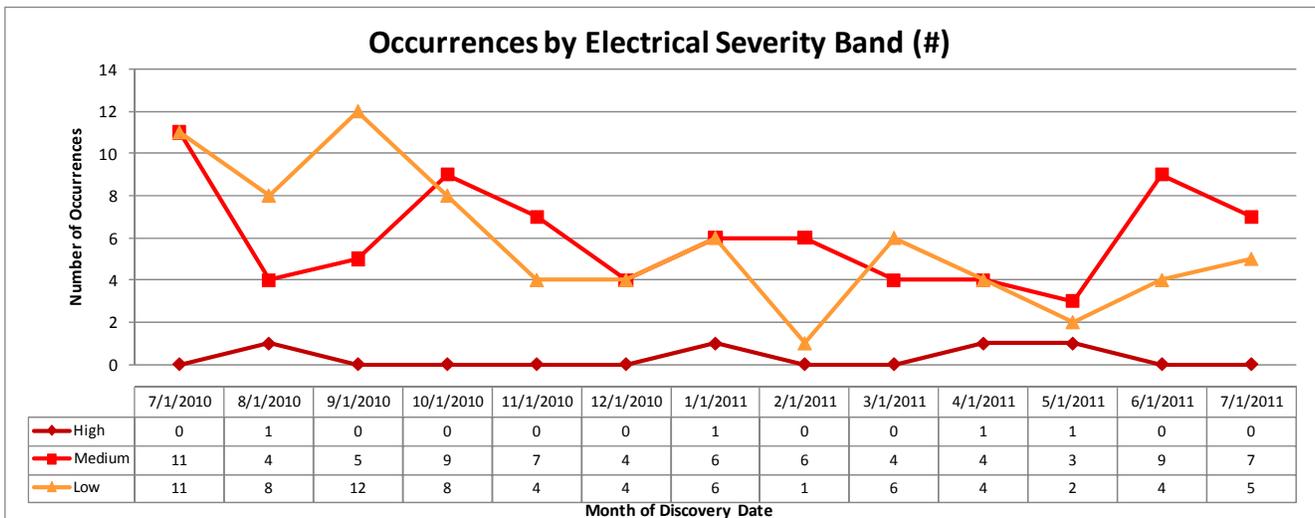
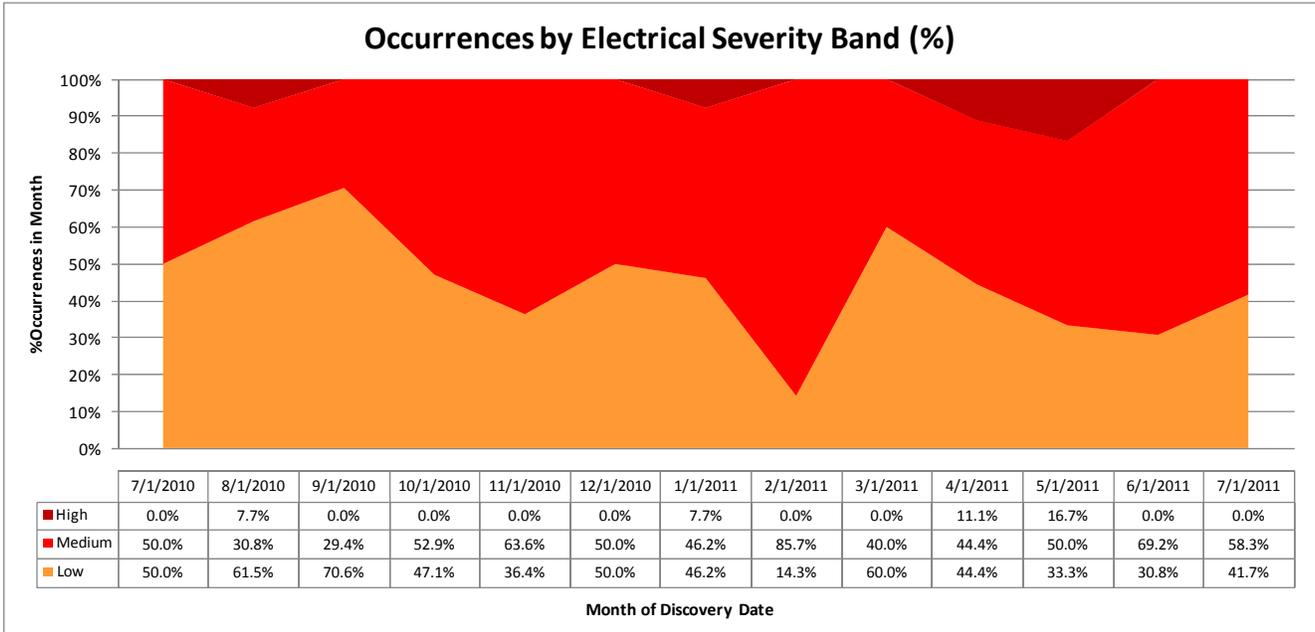
The average ESI has increased from 19.2 in June 2010 to 21.3 in June 2011. The ongoing efforts of the EFCOG Electrical Safety Subgroup and the recommendations from the various subcommittees can help reduce the number of medium and high electrical severity events and thus reduce the ESI. The following chart shows the number of days since the previous high severity occurrence. The present interval is 83 days. The longest interval was 181 days in 2009.



Summary of Occurrences by Severity Band

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

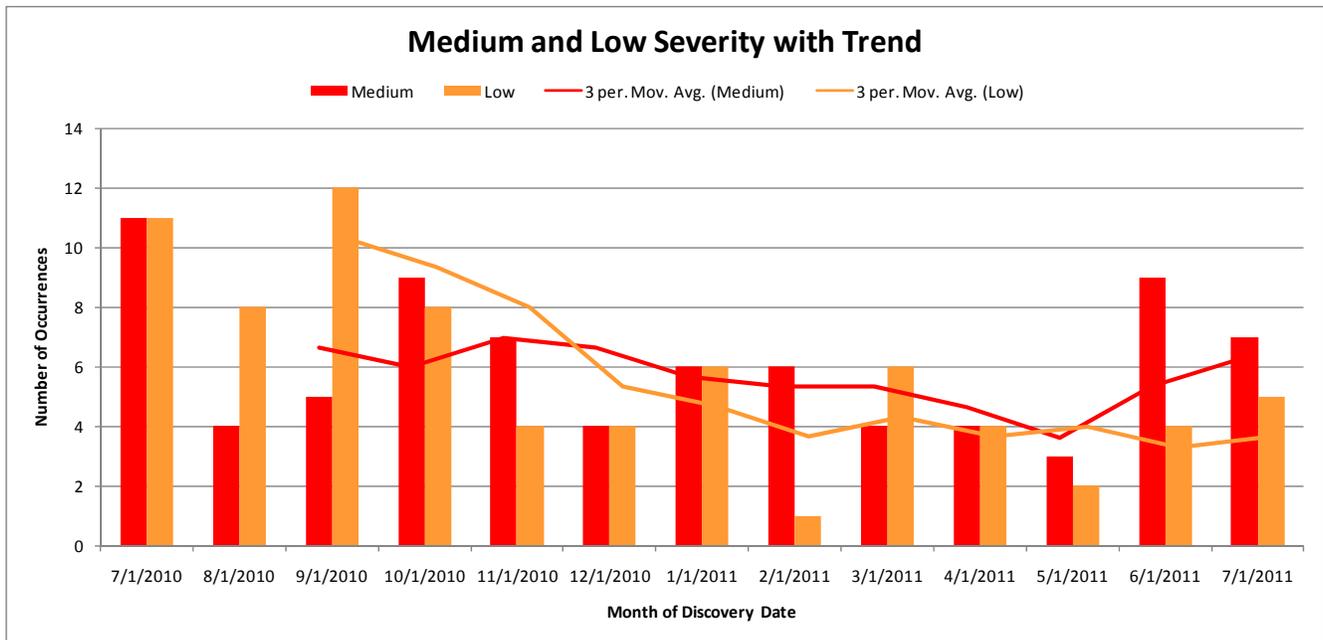
- By percentage of total occurrences in month
- By number of occurrences in month



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 two months and that the number of occurrences with Medium scores decreased as Low electrical severity scores 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 July 2010 through July 2011. Trend lines are included for each, using a 3-month moving average.



The 3-month moving average shows a slightly higher increase in Medium severity occurrences than in Low severity occurrences.

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 – July 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	EM-RP--WRPS-TANKFARM-2011-0016	While switching 110V power an electrical spark occurred from an open junction box with loose wires, tripping a GFCI.									3	2C(2)	2
2	EM-SR--SRNS-MOGEN-2011-0008	A floor cleaning service subcontractor received a shock to his left hand from a switch on a floor buffer.	X								3	10(2)	630
3	NA--KCSO-AS-KCP-2011-0008	Electrical engineer receives minor Shock while conducting insulation resistance test.	X								4	10(2)	33
4	NA--LSO-LLNL-LLNL-2011-0037	A worker did not hang his lock as required and assisted on the job.				X					R	2C(2)	0
5	NA--LSO-LLNL-LLNL-2011-0037	A worker did not re-verify their volt meter per LOTO procedures after a zero energy check.				X					R	2C(2)	0
6	NA--PS-BWP-PANTEX-2011-0045	A switchgear panel cover was found lying on the ground.									3	2C(2)	0
7	NA--PS-BWP-PANTEX-2011-0048	A roofer damaged energized photo cell electrical junction box causing a spark.							X		3	2C(2)	0
8	NA--SS-SNL-2000-2011-0001	Worker receives a 120V shock when a quick disconnect plug for a heating tape failed while being disconnected.	X								2	2C(1)	330
9	NA--SS-SNL-5000-2011-0002	A worker received a hand-to-hand shock when a trigger box fired that was not grounded.	X								2	2C(1)	330
10	NA--YSO-BWXT-Y12SITE-2011-0020	When electricians uncoiled cut wires, the end of one of the wires touched metal and tripped a circuit breaker.									3	2C(2)	110

Attachment 1

No	Report Number	Event Summary	SHOCK	BURN	ARCF ⁽¹⁾	LOTO ⁽²⁾	PLAN ⁽³⁾	EXCAV ⁽⁴⁾	CUT/D ⁽⁵⁾	VEH ⁽⁶⁾	SC ⁽⁷⁾	RC ⁽⁸⁾	ES ⁽⁹⁾
11	SC--ASO-ANLE-ANLEPHY-2011-0001	An ion source engineer received a shock while performing helium leak tests on 30kV source.	X								2	2C(1)	33
12	SC--BHSO-BNL-BNL-2011-0020	A LOTO did not include all sources of power to a single fan that received power from two parallel switches (not a 3-way).				X	X				3	2C(2)	110
	TOTAL		5	0	0	3	1	0	1	0			

NOTE: The ORPS Report from LLNL (NA--LSO-LLNL-LLNL-2011-0037) reported two separate hazardous energy control events and both events are counted.

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 – July 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	EM-RP--WRPS-TANKFARM-2011-0016	While switching 110V power an electrical spark occurred from an open junction box with loose wires, tripping a GFCI.		X		X					X			X
2	EM-SR--SRNS-MOGEN-2011-0008	A floor cleaning service subcontractor received a shock to his left hand from a switch on a floor buffer.		X	X	X					X			
3	NA--KCSO-AS-KCP-2011-0008	Electrical engineer receives minor Shock while conducting insulation resistance test.	X			X					X			
4	NA--LSO-LLNL-LLNL-2011-0037	A worker did not hang his lock as required and assisted on the job.		X			X				X			
5	NA--LSO-LLNL-LLNL-2011-0037	A worker did not re-verify their volt meter per LOTO procedures after a zero energy check.		X			X				X			
6	NA--PS-BWP-PANTEX-2011-0045	A switchgear panel cover was found lying on the ground.	X				X	X	X		X			X
7	NA--PS-BWP-PANTEX-2011-0048	A roofer damaged energized photo cell electrical junction box causing a spark.		X	X	X					X			X
8	NA--SS-SNL-2000-2011-0001	Worker receives a 120V shock when a quick disconnect plug for a heating tape failed while being disconnected.	X			X					X			X
9	NA--SS-SNL-5000-2011-0002	A worker received a hand-to-hand shock when a trigger box fired that was not grounded.	X		X	X					X			
10	NA--YSO-BWXT-Y12SITE-2011-0020	When electricians uncoiled cut wires, the end of one of the wires touched metal and tripped a circuit breaker.	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	SC--ASO-ANLE-ANLEPHY-2011-0001	An ion source engineer received a shock while performing helium leak tests on 30kV source.		X		X					X			
12	SC--BHSO-BNL-BNL-2011-0020	A LOTO did not include all sources of power to a single fan that received power from two parallel switches (not a 3-way).	X				X				X			
	TOTAL		6	6	3	8	4	1	1	1	11	0	0	5

NOTE: The ORPS Report from LLNL (NA--LSO-LLNL-LLNL-2011-0037) reported two separate hazardous energy control events and both events are counted.

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 55310 OR(s) with 58620 occurrences(s) as of 8/10/2011 9:46:42 AM
 Query selected 11 OR(s) with 11 occurrences(s) as of 8/10/2011 10:49:26 AM

Download this report in Microsoft Word format. 

1)Report Number: [EM-RP--WRPS-TANKFARM-2011-0016](#) **After 2003 Redesign**
Secretarial Office: Environmental Management
Lab/Site/Org: Hanford Site
Facility Name: Tank Farms
Subject/Title: Electrical Spark Observed Switching Camera Van From Battery Power to External Power
Date/Time Discovered: 07/18/2011 17:44 (PTZ)
Date/Time Categorized: 07/18/2011 17:46 (PTZ)
Report Type: Notification

Report Dates:

Notification	07/19/2011	16:59 (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:

- 1) Define the Scope of Work
- 2) Analyze the Hazards
- 3) Develop and Implement Hazard Controls

Subcontractor Involved: No

Occurrence Description: On July 18, 2011, Washington River Protection Solutions (WRPS) Base Operations' Waste Transfer operators were tasked to prepare an old liquid observation well (LOW) van for use as a camera van to video a leak check of the waste transfer route for an upcoming transfer. While preparing to clean the van and install video equipment, an extension cord from an external power source (2715-AW building) was plugged into the van to provide 110 volt electrical power. Power to the van can then be switched from battery power to external power via a control box within the van.

When the operator switched the van from battery power to external power, an electrical spark from an open junction box with loose wires occurred subsequently tripping a ground-fault circuit interrupter in the 2715-AW building.

Cause Description:

Operating Conditions:

Does not apply.

Activity Category:

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

Immediate Action(s):

Work was stopped.
Waste Transfer manager was notified.
Once power was secured, the van was moved to a Radiological Materials Area.
The van was then cordoned with caution tape and a DO NOT ACCESS sign secured to door.
An event investigation was initiated.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: Ellis, Martin W
By When:

Division or Project:

Washington River Protection Solutions LLC (WRPS)

Plant Area:

200 East

System/Building/Equipment: Liquid Observation Well (LOW) Van/2715-AW/Video Equipment

Facility Function:

Nuclear Waste Operations/Disposal

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 July 18, 2011, when a Washington River Protection Solutions Base Operations' Waste Transfer operator switched an old liquid observation well van from battery power to external power, an electrical spark occurred from an open junction box with loose wires, tripping a ground-fault circuit interrupter in the 2715-AW building. Operators were tasked to prepare the van for use as a camera van to video a leak check of the waste transfer route for an upcoming transfer. While preparing to clean the van and install the video equipment, an extension cord from the external power

source (2715-AW building) was plugged into the van to provide 110 volt electrical power. When power to the van was switched from battery power to external power via a control box within the van, the electrical spark occurred. The work was stopped and, once the power was secured, the van was moved to a Radiological Materials Area and cordoned with caution tape and a DO NOT ACCESS sign secured to door. An event investigation was initiated.

Similar OR Report Number:

Facility Manager:

Name	Ellis, Martin W
Phone	(509) 373-4696
Title	Manager, Performance Assurance

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
07/18/2011	17:47 (PTZ)	Klos, J. J.	WRPS
07/18/2011	17:54 (PTZ)	Frink, R. L.	DOE-ORP
07/18/2011	17:57 (PTZ)	Davis, K. W.	MSA-ONC

Authorized Classifier(AC):

2)Report Number: [EM-SR--SRNS-MOGEN-2011-0001](#) After 2003 Redesign
Secretarial Office: Environmental Management
Lab/Site/Org: Savannah River Site
Facility Name: Site Infrastructure and Project Systems
Subject/Title: Electrical Shock to Floor Cleaning Service Contractor at 241-28H
Date/Time Discovered: 07/21/2011 18:40 (ETZ)
Date/Time Categorized: 07/26/2011 09:30 (ETZ)
Report Type: Notification

Report Dates:

Notification	07/26/2011	16:43 (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
ENSYNC-ASTI

Occurrence Description: An ENSYNC-ASTI Floor Cleaning Service subcontract employee received a shock to his left hand while operating a floor buffer at 241-28H. The employee applied a solution consisting of hot water and a wax stripping chemical to the tile floor, let it sit until it loosened the wax, and began buffing the floor to remove the wax. He realized the buffer speed was too high and reached down with his left hand to decrease the speed using a metal toggle switch. As soon as his fingers contacted the switch he felt a shock and released the power kill switch with his right hand. He then unplugged the power cord to the buffer and notified his supervisor.

Cause Description:

Operating Conditions: Normal Operations

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

Immediate Action(s):

1. Notifications were made to the subcontractor's work group supervisor, project manager, and the SRR building supervisor.
2. A Time-Out was taken by the subcontractor.
3. The SRR facility personnel suggested that the employee be sent to Site Medical for initial evaluation but the subcontractor elected to follow their policy for non-life threatening injuries and the injured employee was transported by the subcontract project manager to an off-site emergency room (normal medical provider was closed) for evaluation. The injured employee was treated and released to return home from the emergency room.
4. SRR facility personnel inspected/tested the electrical outlet and circuit involved in the issue and determined there were no deficiencies with the circuit or outlet.
5. A Time-Out is in effect until corrective actions can be developed, approved, and implemented.
6. ENSYNC-ASTI personnel removed the buffer from service and transported it to their facility for evaluation.

FM Evaluation: The Facility Manager concurs with this report.

Originally, a Fact Finding Meeting was conducted by SRR/Liquid Waste Operations personnel on 07/22/2011. A follow-up Fact Finding Meeting

was held on 07/25/2011. The time delay between the event and notifications for this report is due to a change in ownership of the event from SRR to SRNS, after Management discussions and a review of the fact finding meeting results from the event. Initial notifications to SRR, SRNS, and the applicable DOE Facility Representatives were performed in a timely manner.

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 630 (Medium Significance). This event scores as follows: Electrical Hazard: 10 (120 volt circuit); Environmental Factor: 10 (wet); Shock Proximity Factor: 10; Arc Flash: 0; Thermal Factor: 0; and Injury Factor:3 (Shock but no fibrillation). Electrical Severity= $10*(1+10+10+0+0+0)*3=630$.

This report was approved on 07/26/2011 by R.E. Gentry, V.P., Infrastructure Services.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? Yes
By Whom: G.M. Haas
By When: 08/01/2011

Division or Project:

SRR/LWO/H-Tank Farm

Plant Area:

H-Area/H-Tank Farm

System/Building/Equipment: 241-28H

Facility Function:

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

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

08A--OSHA Reportable/Industrial Hygiene - Electrical Shock
11G--Other - Subcontractor
12C--EH Categories - Electrical Safety
14L--Quality Assurance - No QA Deficiency

HQ Summary:

On July 21, 2011, an ENSYNC-ASTI Floor Cleaning Service subcontract employee received a shock to his left hand while operating a floor buffer at 241-28H. The employee had applied a solution of hot water and a wax stripping chemical to the tile floor, he let it sit until it had loosened the wax, and then began buffing the floor to remove the wax. He realized the buffer speed was too high and reached down with his left hand to decrease the speed using a metal toggle switch. As soon as his fingers touched the

switch, he felt a shock and released the power kill switch with his right hand. He then unplugged the power cord to the buffer and notified his supervisor. The SRS Electrical Safety subject matter expert has calculated the severity for this event as 630 (medium significance). The injured employee was transported by the subcontract project manager to an off-site emergency room for evaluation where he was treated and released. A time-out is in effect until corrective actions can be developed, approved, and implemented. Subcontractor personnel removed the buffer from service and transported it to their facility for evaluation. An inspection and test of the electrical outlet and circuit involved in the shock found no deficiencies.

Similar OR Report Number:

Facility Manager:

Name	LADOMIRAK, P.P.
Phone	(803) 557-5354
Title	Manager, Site Infrastructure Transportation

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
07/26/2011	09:35 (ETZ)	Bolen, T.M.	ES&H
07/26/2011	09:36 (ETZ)	Gentry, R.E.	Inf Serv
07/26/2011	09:38 (ETZ)	Gleaton, W.M.	Inf Serv
07/26/2011	09:40 (ETZ)	Murphy, W.R.	DOE-SR
07/26/2011	10:51 (ETZ)	Ladimirak, P.P.	Inf Serv

Authorized Classifier(AC): Hutto, C.R. Date: 07/26/2011

3)Report Number: [NA--KCSO-AS-KCP-2011-0008](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Kansas City Plant

Facility Name: Kansas City Plant

Subject/Title: Electrical Engineer Receives Minor Electrical Shock

Date/Time Discovered: 07/27/2011 15:00 (CTZ)

Date/Time Categorized: 07/28/2011 14:00 (CTZ)

Report Type: Notification/Final

Report Dates:

Notification	07/29/2011	16:19 (ETZ)
Initial Update	07/29/2011	16:19 (ETZ)

Latest Update	07/29/2011	16:19 (ETZ)
Final	07/29/2011	16:19 (ETZ)
Revision 1	08/01/2011	10:01 (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:

2) Analyze the Hazards

Subcontractor Involved:

No

Occurrence Description:

On July 27, 2011 at approximately 1500 hours at the Kansas City Plant (KCP) managed by Honeywell Federal Manufacturing & Technologies Kansas City (FM&T/KC) an electrical engineer received a minor electrical shock. The electrical engineer was performing an insulation resistance test on an electrical KCP engineering unit using a KCP production tester and encountered a failure during the test. The electrical engineer opened the door on the centrifuge where the part was housed to check the units connection points to the tester. The door to the centrifuge is interlocked to shut down power to the unit when it is opened. As the electrical engineer grabbed the unit and fixture he felt a shock. The engineer and a co-worker immediately shut down the equipment, locked and tagged it out and contacted their management. The engineer who received the shock contacted FM&T Medical Care services on July 27, 2011. The engineer reported to FM&T/KC Medical Care Services on July 28, 2011 for evaluation and was released without any treatment.

Cause Description:

Operating Conditions:

Electrical testing operations

Activity Category:

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

Immediate Action(s):

A FM&T/KC Health Safety and Environment (HS&E) Engineer responded to the reported concern and initiated an investigation. After review by HS&E and the FM&T/KC Electrical Safety Committee the equipment was released back to test equipment and electrical engineering to trouble shoot and implement corrective actions. The maximum output of the tester is 500 Volts Direct Current (DC) and 0.5 milliAmps (mA). The Electrical Severity Measurement tool was used to score the event. The incident scored a 33 which is .2% into the medium significance category.

A National Nuclear Security Administration Kansas City Site Office representative was notified of the incident on July 27, 2011.

This report has been reviewed and determined to be unclassified by:

Authorized Derivative Classifier: Clyde E. Hicks
Title: Administrator II, HS&E
Date: July 29, 2011

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Honeywell Federal Mfg. & Technologies Kansas City

Plant Area: Main Mfg. Bldg.

System/Building/Equipment: UA4017Centrifuge mfg. Contraves, PT3698PS6 KepcoPwr Supply

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

Corrective Action:

Lessons(s) Learned:

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

HQ Summary:

On July 27, 2011, while performing an insulation resistance test on an electrical KCP production part using a KCP production tester, an electrical engineer received a minor electrical shock when a failure during the test was encountered. The electrical engineer opened the door on the centrifuge, where the part was housed, to check the connection points from the unit to the tester. The door to the centrifuge is interlocked to shut down power to the unit when it is opened. As the electrical engineer grabbed the unit and the fixture, he felt a shock. The maximum output of the tester is 500 volts DC and 0.5 milliAmps. The engineer and a co-worker immediately shut down the equipment, locked and tagged it out, and contacted their management. The engineer reported to FM&T/KC Medical Care Services on July 28, for evaluation and was released without any treatment. An investigation was initiated to troubleshoot and implement corrective actions. The Electrical Severity Measurement tool was used to score the event. The incident scored a 33, which is .2 percent into the medium significance category.

Similar OR Report Number: 1. NA--LASO-LANL-RADIOCHEM-2005-0003
2. NA--LASO-LANL-ESHSUPT-2005-0005

3. NA--KCSO-AS-KCP-2007-2008
4. EM-RL--PHMC-TPLANT-1996-0002
5. EM-RL--PHMC-SOLIDWASTE-2000-0003
6. EM-RL--PHMC-SNF-2005-0013
7. EM-RFO--KHLL-NONPUOPS1-2002-0001
8. EM-RFO--KHLL-D&DOPS-2003-0004
9. NA--LASO-LANL-TSF-2005-0001
10. NA--LSO-LLNL-LLNL-2010-0036
11. NA--LSO-LLNL-LLNL-2011-0003
12. NA--SS-SNL-1000-2010-0010
13. NA--SS-SNL-6000-2006-0001
14. NE-RL--WHC-FFTF-1992-0006
15. NE-RL--WHC-FFTF-1992-0010
16. NE-RL--WHC-FFTF-1994-0008
17. SC--BHSO-BNL-BNL-2008-0004
18. SC--BHSO-BNL-BNL-2010-0029
19. SC-ORO--SURA-TJNAF-2001-0002
20. DP-ALO-KO-SNL-2000-1996-0001
21. DP-ALO-KO-SNL-2000-1997-0001
22. DP-ALO-KO-SNL-4000-1998-0001
23. DP-OAK--LLNL-LLNL-1999-0016
24. EM-ORO--LMES-K25WASTMAN-1997-0004
25. EM-RFO--EGGR-ANALYTOPS-1994-0008

Facility Manager:

Name	Curt Valle
Phone	(816) 997-2896
Title	Manager, Health Safety & Environment

Originator:

Name	HICKS, CLYDE E
Phone	(816) 997-2262
Title	EMERGENCY MGT SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/27/2011	16:30 (CTZ)	Mike Roberts	KCSO

Authorized Classifier(AC): Clyde E. Hicks Date: 08/01/2011

4)Report Number: [NA--LSO-LLNL-LLNL-2011-0037](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Lawrence Livermore National Lab.
Facility Name: Lawrence Livermore Nat. Lab. (BOP)
Subject/Title: Lockout/Tagout Procedures Not Followed During Air Conditioning Work in Buildings 439 & 691- Recurring
Date/Time Discovered: 07/13/2011 10:00 (PTZ)
Date/Time Categorized: 07/13/2011 17:00 (PTZ)
Report Type: Notification
Report Dates:

Notification	07/15/2011	17:23 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: R
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
 Akima, Inc.

Occurrence Description: On July 13, 2011, at approximately 1000 hours, two Facilities & Infrastructure (F&I) Directorate/Maintenance & Utility Service Department (MUSD) employees were performing air conditioning equipment work in Building 439 when one of the employees failed to follow the established Lockout/Tagout (LOTO) procedure.

Two MUSD workers were performing work on an air conditioning unit that supports a computer server room in Building 439. The first worker followed the LLNL LOTO procedures in correctly isolating the electrical equipment. The second worker did not follow the LOTO procedure by not placing his personal LOTO lock/tag on the equipment prior to assisting with the work activity. The system/equipment had been safely isolated by the first worker, which included a zero energy check, however the second worker is required to affix his own lock/tag prior to working on the same electrical equipment.

And, on July 14, 2011, at approximately 0930, a F&I/MUSD employee was performing preventative maintenance work in Building 691. During

the LOTO process to de-energize the equipment, the employee did not complete all required steps of the LOTO procedure. The LOTO procedure requires the employee to verify his test instrument (i.e. voltage meter) as operational both before and after use. The employee performed a function test with his voltage meter, then verified that the equipment was not energized, but did not re-verify the function test with his voltage meter.

No injuries resulted from these events and no personnel made contact with electrical energy.

This occurrence report is being tracked LLNL's Issues Tracking System, reference Assessment No. 32813.

Cause Description:

Operating Conditions: Does not apply

Activity Category: Maintenance

Immediate Action(s):

1. The Facilities & Infrastructure Directorate line managers were immediately notified of the event.
2. The Maintenance & Utility Services Department implemented a safety pause.

FM Evaluation: The final report is due to the ORO by 8/23/2011.

The final report is due for entry into ORPS by 8/26/2011.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: Yes.
Before Further Operation? No
By Whom: Kevin Akey
By When: 08/23/2011

Division or Project: O&B

Plant Area: Site 200

System/Building/Equipment: Building 439, 691

Facility Function: Balance-of-Plant - Site/outside utilities

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 July 13, 2011, two Facilities & Infrastructure Directorate/Maintenance

& Utility Service Department (MUSD) employees were performing air conditioning equipment work in Building 439 when one of the employees failed to follow the established lockout/tagout (LOTO) procedure. The first worker followed the LLNL LOTO procedures in correctly isolating the electrical equipment. The second worker did not follow the LOTO procedure by not placing his personal LOTO lock/tag on the equipment before assisting with the work activity. The system/equipment had been safely isolated by the first worker, which included a zero energy check; however, the second worker is required to affix his own lock/tag before working on the same electrical equipment. On July 14, a MUSD employee was performing preventative maintenance work in Building 691 and did not complete all required steps of the LOTO procedure during the LOTO process to de-energize the equipment. The LOTO procedure requires the employee to verify his test instrument (i.e. voltage meter) as operational both before and after use. The employee performed a function test with his voltage meter, and then verified that the equipment was not energized, but did not re-verify the function test with his voltage meter. No injuries resulted from these events and no personnel made contact with electrical energy. MUSD management has implemented a safety pause.

Similar OR Report Number: 1. NA--LSO-LLNL-LLNL-2010-0028

Facility Manager:

Name	Harold T. Conner
Phone	(925) 422-5786
Title	Facilities & Infrastructure Associate Director

Originator:

Name	FREEMAN, JEFFREY W
Phone	(925) 424-6787
Title	OCCURRENCE REPORTING

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/13/2011	17:50 (PTZ)	Barbara Quivey	LEDO
07/13/2011	17:55 (PTZ)	Lois Marik	NNSA/LSO
07/13/2011	18:05 (PTZ)	Tracey Simpson	ESH TL

Authorized Classifier(AC): Kevin Akey Date: 07/15/2011

5)Report Number: [NA--PS-BWP-PANTEX-2011-0045](#) After 2003 Redesign
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Pantex Plant
Facility Name: Pantex Plant
Subject/Title: Missing Switch Gear Rear Panel Cover

Date/Time Discovered: 07/11/2011 14:00 (CTZ)

Date/Time Categorized: 07/11/2011 15:50 (CTZ)

Report Type: Notification

Report Dates:

Notification	07/13/2011	13:41 (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 July 11, 2011, Electrical Distribution System manager was notified by personnel working in the area of the switch gear panel lying on the ground. System manager notified Electrical Safety personnel to investigate the occurrence. Switch gear was de-energized and inspected. Improper fasteners were found to be used to attach the panel cover. Fasteners failed under high wind conditions. The correct fasteners were installed and system was restored to normal operation. Extent of Condition evaluation for similiar equipment is on-going. The electrical severity rating tool revealed a score of zero for the event.

Cause Description:

Operating Conditions: Normal

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

Immediate Action(s): Notfications were made to Electrical Safety, Supervisor, and Operations Center
Area was secured to prevent access to energy source
Procedure was initiated to de-energize the switch gear to install the back panel cover.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Maintenance

Plant Area: Zone 12 South

System/Building/Equipment: Electrical Distribution System

Facility Function: Balance-of-Plant - Site/outside utilities

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation
 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
 11D--Other - Natural Phenomena
 12C--EH Categories - Electrical Safety
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On July 11, 2011, the Electrical Distribution System manager was notified by personnel, who were working in the area of a switchgear panel that a panel cover was laying on the ground. The System manager notified Electrical Safety personnel to investigate the occurrence. The area was secured to prevent access to the energy source and a procedure was initiated to de-energize the switchgear and reinstall the back panel cover. The switchgear was de-energized and inspected. Improper fasteners were found to be used to attach the panel cover and they had failed under high wind conditions. The correct fasteners were installed and system was restored to normal operation. An Extent of Condition evaluation for similar equipment is on-going.

Similar OR Report Number:

Facility Manager:

Name	Brent Henderson
Phone	(806) 477-3213
Title	Maintenance Department Manager

Originator:

Name	GRAHAM, BRENDA LEE
Phone	(806) 477-5103
Title	ADMINISTRATIVE SPECIALIST III

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/11/2011	15:50 (CTZ)	Julian Biggers	PXSO

Authorized Classifier(AC): George Weathers Date: 07/13/2011

6)Report Number: [NA--PS-BWP-PANTEX-2011-0048](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Pantex Plant
Facility Name: Pantex Plant
Subject/Title: Disruption of Energized Circuit During Roofing Project
Date/Time Discovered: 07/28/2011 18:23 (CTZ)
Date/Time Categorized: 07/28/2011 19:42 (CTZ)
Report Type: Notification

Report Dates:

Notification	08/01/2011	17:10 (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
 Building Technology Associates (BTA)

Occurrence Description: Note: This ORPS is being submitted for Building Technology Associates Inc.(BTA) who carries the Department of Energy (DOE) Roof Assessment Management Program (RAMP)contracted to replace or repair identified facility roofs at the Pantex Plant. BTA carries this roofing contract through the DOE Kansas City Site.

On 07-28-2011 at 1823 hrs, an employee of Bennett & Brosseau Roofing (B&B) was conducting roof removal at a Zone 12 South Facility when an electrical sparking event occurred. B&B Roofing is a subcontractor to BTA. The B&B employee was conducting a demolition and repair job on a section of the roof directly adjacent to a rigid metal conduit riser connected to a weather proof electrical junction box. This junction box housed an energized photo cell. The initial job scope did not include Lock Out Tag Out (LOTO) of this photo cell, as the work was to be performed in close proximity, but was not anticipated to disturb this photo cell, conduit and/or connections.

During the work, the B&B employee was using an axe to remove roofing and flashing on the roof of the Zone 12 South Facility. It is thought that during this process, the employee either struck or bumped the energized

photo cell electrical junction box. Upon receipt of this contact, the internal photo cell switch came in contact with the junction box which caused a “popping noise” and a subsequent temporary electrical arc. This electrical arc caused the face of the photo cell cover to be “blown off” the housing/electrical junction box.

The B&B employee stopped all work and made notifications to his supervisor, who then notified the B&W Pantex Project Subcontract Technical Representative (PSTR) who halted all work. The PSTR notified the B&W Pantex Operations Center (OC), who notified B&W Pantex Industrial Safety. Industrial Safety personnel notified the south- end electrical maintenance personnel, took pictures and personnel statements. Electrical maintenance personnel arrived, traced out the circuit to the affected photo cell, and conducted a LOTO.

After making this area safe and stable, the B&B subcontractor was allowed to return to work, and completed this scheduled portion of the roof repair at the end of their shift.

There was no damage to facilities (other than this junction box), no injury to employees, nor any threat to security or the environment as a result of this event.

Cause Description:

Operating Conditions:

Activity Category:

Immediate Action(s):

The facility was operating normally

Construction

1. Stopped work B&B Personnel 07-28-11
2. Made appropriate notifications B&B Personnel and PSTR 07-28-11
3. B&W Electricians B&W Pantex Electricians 07-28-11
evaluated area and applied
LOTO
4. B&W Industrial Safety B&W Industrial Safety 07-28-11
recorded event and allowed
return to work

NNSA Duty Officer, B&W Pantex Duty Officer and the Operations Center were notified.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Required:

Yes.
Before Further Operation? No

By Whom: IAN HUGHES

By When:

Division or Project:

Projects

Plant Area:

Zone 12 South MAAA

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:

- 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
- 01Q--Inadequate Conduct of Operations - Personnel error
- 07E--Electrical Systems - Electrical Equipment Failure
- 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 July 28, 2011, a subcontractor employee of Bennett & Brosseau Roofing (B&B) was conducting roof removal at a Zone 12 South Facility when an electrical sparking event occurred. The B&B employee was conducting a demolition and repair job on a section of the roof directly adjacent to a rigid metal conduit riser connected to a weather proof electrical junction box. This junction box housed an energized photo cell. The initial job scope did not include Lock Out Tag Out (LOTO) of this photo cell, as the work was not anticipated to disturb the photo cell, conduit and/or connections. During the work, the B&B employee was using an axe to remove roofing and flashing on the roof. It is thought that during this process, the employee either struck or bumped the energized photo cell electrical junction box. Upon receipt of this contact, the internal photo cell switch came in contact with the junction box which caused a “popping noise” and a subsequent temporary electrical arc. This electrical arc caused the face of the photo cell cover to be “blown off” the housing/electrical junction box. The B&B employee stopped all work and made notifications. Electrical maintenance personnel arrived, traced out the circuit to the affected photo cell, and conducted a LOTO. After making this area safe and stable, the B&B subcontractor was allowed to return to work, and completed this scheduled portion of the roof repair.

Similar OR Report Number:

Facility Manager:

Name	Ian Hughes
Phone	(806) 477-3463
Title	Construction Support 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
07/28/2011	19:42 (CTZ)	Grady Rose PXSO Duty Office	DOE/NNSA

Authorized Classifier(AC): Don Gerber Date: 08/01/2011

7)Report Number:

[NA--SS-SNL-2000-2011-0001](#) After 2003 Redesign

Secretarial Office:

National Nuclear Security Administration

Lab/Site/Org:

Sandia National Laboratories - SS

Facility Name:

SNL Division 2000

Subject/Title:

Electrical Shock from Equipment Disconnect Failure in Building 870, Room 2208

Date/Time Discovered:

07/11/2011 08:23 (MTZ)

Date/Time Categorized:

07/11/2011 09:19 (MTZ)

Report Type:

Notification

Report Dates:

Notification	07/11/2011	16:42 (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:

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

Subcontractor Involved:

No

Occurrence Description:

This event's severity score was 330, as follows: Electrical Hazard Factor: 10 (120 V, downstream of < 125 KVA transformer) | Environment Factor : 0 (indoors/dry); Shock Proximity Factor: 10 (contact); Arc Flash Proximity Factor: 0 (single phase 120V); No PPE / Equipment mitigations; Injury Factor: 3 (shock w/o fibrillation).

At approximately 10:15 a.m. on 7/7/2011, a quick disconnect plug for a heating tape failed while being disconnected. An energized wire slipped from its shielded holder and was briefly exposed. An employee's finger then grazed the wire and a "light buzz" was felt in that finger.

The equipment was shut down and the employee was taken to medical for evaluation. No treatment was required and the employee was released to return to work the same day.

Cause Description:

Operating Conditions: Normal

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

Immediate Action(s): The equipment was shut down and the employee was taken to medical for evaluation. No treatment was required and the employee was released to return to work the same day.

FM Evaluation: EOC #1101920

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: Yes.
Before Further Operation? No
By Whom: Causal Analysis Team
By When: 08/25/2011

Division or Project: 2000/Responsive NG Product Deployment Center

Plant Area: Tech Area I

System/Building/Equipment: R&D Equipment/Bldg. 870, Rm. 2208

Facility Function: Laboratory - Research & Development

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 July 7, 2011, while an employee was disconnecting a quick disconnect plug for a heating tape, the plug failed resulting in an electrical shock. The employee felt a "light buzz" in a finger, when the finger grazed an energized wire that had slipped from the shielded holder of the plug. The equipment was shut down and the employee was taken to medical for evaluation. No treatment was required and the employee was released to return to work the same day.

Similar OR Report Number:

Facility Manager:

Name	Robert Burkhart
Phone	(505) 844-6497
Title	Center 2700 ES&H Project Leader

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
07/11/2011	09:19 (MTZ)	Michael Eatough	2735
07/11/2011	09:19 (MTZ)	Dolores Sanchez	2733
07/11/2011	09:19 (MTZ)	Tim Gardner	2710
07/11/2011	09:40 (MTZ)	Gary Schmidtke, FR	DOE/SSO
07/11/2011	09:45 (MTZ)	EOC	4136

Authorized Classifier(AC): Michael Eatough Date: 07/11/2011

8)Report Number:

[NA--SS-SNL-5000-2011-0002](#) **After 2003 Redesign**

Secretarial Office:

National Nuclear Security Administration

Lab/Site/Org:

Sandia National Laboratories - SS

Facility Name:

SNL Division 5000

Subject/Title:

Electric Shock from Contact with Equipment Case at Bldg. 6640

Date/Time Discovered:

07/29/2011 16:56 (MTZ)

Date/Time Categorized:

07/29/2011 18:45 (MTZ)

Report Type:

Notification

Report Dates:

Notification	08/01/2011	17:09 (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: 1) Define the Scope of Work
2) Analyze the Hazards
3) Develop and Implement Hazard Controls

Subcontractor Involved: Yes
Raytheon Ktech

Occurrence Description: At approximately 1645, on 07/29/2011, the Member of the Workforce (MOW) finished building a circuit board and assembling it into the housing. Upon completion of the trigger box, the MOW attempted to verify that the circuit operated correctly. The MOW connected the power supplies and the load to the trigger box. The power supply was turned on and therefore the trigger box was charged. The trigger box is fired via a fiber optic cable. The MOW realized that the optical fiber was not connected to the trigger box. The MOW then proceeded to connect the fiber to the trigger box while it was still powered on. Upon connecting the optical fiber, the trigger box fired through an external load. The trigger box fired for two reasons. First, the trigger box was connected to the power supply and the power supply was powered on. Second, the optical transmitter was powered on as well. The MOW described the feeling of an electrical shock. The MOW happened to also be touching another piece of equipment, a Quantum Composer, at the time the trigger box fired. Therefore, the shock went hand-to-hand. The MOW received no injury.

The trigger box was not earth grounded. Since the trigger box was not earth grounded, the MOW was in parallel with the node between the load and the return path side of the capacitors.

Energized Work Decision Tool had a severity score of 330 as follows: Electrical Hazard Factor: 10 (.25-50 J); Environment Factor: 0 (Dry); Shock Proximity Factor: 10 (inside prohibited approach boundary); Arc Flash Proximity Factor: 0 (no arc flash hazard); Thermal Proximity Factor: 0 (No thermal hazard); No PPE mitigations; Injury Factor: 3 (minor shock, no fibrillation).

Cause Description: Critique/Fact Finding Performed: 8/1/2011

Operating Conditions: Extended work day

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

Immediate Action(s): OOPs notified (11-02219) on 07/29/2011 - Medical response. The MOW was treated and released. The equipment was safed and the scene preserved.

FM Evaluation: EOC #s 11-21697 and 11-02219

DOE Facility Representative Input:
DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? Yes
By Whom: Causal Analysis Team
By When: 09/12/2011

Division or Project:

5000/Directed Energy Special Applications - 05443

Plant Area:

Tech Area III

System/Building/Equipment: Compact Capacitive Discharge Trigger Unit/Bldg. 6640, Rm. 2

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
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 July 29, 2011, a Member of the Workforce (MOW) finished building a circuit board and assembling it into the housing. Upon completion of the trigger box, the MOW attempted to verify that the circuit operated correctly. The MOW connected the power supplies and the load to the trigger box. The power supply was turned on and therefore the trigger box was charged. The trigger box is fired via a fiber optic cable. The MOW realized that the optical fiber was not connected to the trigger box and proceeded to connect the fiber to the trigger box while it was still powered on. Upon connecting the optical fiber, the trigger box fired through an external load. The trigger box fired for two reasons. First, the trigger box was connected to the power supply and the power supply was powered on. Second, the optical transmitter was powered on as well. The MOW described the feeling of an electrical shock. The MOW happened to also be touching another piece of equipment, a Quantum Composer, at the time the trigger box fired. Therefore, the shock went hand-to-hand. The MOW received no injury. The Energized Work Decision Tool had a severity score of 330. Medical responded to the scene and the MOW was treated and released. The equipment was safed and the scene preserved.

Similar OR Report Number:

Facility Manager:

Name	Walt Nickerson
Phone	(505) 845-7241
Title	Center ES&H Coordinator

Originator:

Name	LUCERO, JEWELEE 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
07/29/2011	16:56 (MTZ)	Guillermo Loubriel	5440
07/29/2011	16:56 (MTZ)	EOC	4136
07/29/2011	17:45 (MTZ)	Walt Nickerson	5403-1
07/29/2011	18:45 (MTZ)	Mike Brown, FR	DOE/SSO
07/29/2011	19:14 (MTZ)	Don Joe	5211
07/29/2011	19:14 (MTZ)	David Keese	5400
07/29/2011	19:14 (MTZ)	Steve Lautenschleger	5403

Authorized Classifier(AC): G. Dean Manning Date: 08/01/2011

9)Report Number: [NA--YSO-BWXT-Y12SITE-2011-0020](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Y12 National Security Complex

Facility Name: Y-12 Site

Subject/Title: Unexpected Energized Electrical Conductor Found

Date/Time Discovered: 07/27/2011 14:06 (ETZ)

Date/Time Categorized: 07/27/2011 16:00 (ETZ)

Report Type: Notification

Report Dates:

Notification	08/01/2011	14:45 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3

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

Cause Codes:

ISM: 2) Analyze the Hazards

Subcontractor Involved: No

Occurrence Description: On July 27th, electricians were walking down a demolition job in the basement of Building 9212 when they discovered a portion of conduit that had partially been removed by another crew. The remaining conduit had coiled wires hanging from the end. The electricians were uncoiling the wires in order to obtain wire number identifications when the end of one of the wires touched metal and tripped a circuit breaker. The electricians were wearing required radiological PPE, and there were no injuries or property damage. Work was stopped, the wires and area were made safe and secured.

Cause Description:

Operating Conditions: Normal

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

Immediate Action(s): Work was stopped.
Appropriate notifications were made.
The electricians donned dielectric gloves and secured the wires with electrical tape to place the wires in a safe configuration.
9212 Shift manager had the area flagged off and posted.

FM Evaluation:

DOE Facility Representative Input:

DOE Program Manager Input:

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

Division or Project: Transformation and Projects

Plant Area: Protected Area

System/Building/Equipment: 9212

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
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 July 27, 2011, electricians were walking down a demolition job in the basement of Building 9212 when they discovered a portion of conduit that had partially been removed by another crew. The remaining conduit had

coiled wires hanging from the end. The electricians were uncoiling the wires in order to obtain wire number identifications when the end of one of the wires touched metal and tripped a circuit breaker. The electricians were wearing required radiological PPE, and there were no injuries or property damage. The electricians donned dielectric gloves and secured the wires with electrical tape to place the wires in a safe configuration. The shift manager had the area flagged off and posted. Appropriate notifications were made.

Similar OR Report Number:

Facility Manager:

Name	Mike Gilmartin
Phone	(865) 574-7367
Title	Construction Manager

Originator:

Name	CHARLES, TONY M
Phone	(865) 574-1566
Title	OCCURRENCE REPORTING PROGRAM MANAGER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/27/2011	14:06 (ETZ)	Harry Livergood	Const.
07/27/2011	14:06 (ETZ)	Mark Christopher	Const.
07/27/2011	14:30 (ETZ)	Cher Price	ES&H
07/27/2011	16:00 (ETZ)	Tom Aloisi	PSS
07/27/2011	16:08 (ETZ)	Duty FR	NNSA

Authorized Classifier(AC): Ed Kimbro Date: 08/01/2011

10)Report Number:

[SC--ASO-ANLE-ANLEPHY-2011-0001](#) After 2003 Redesign

Secretarial Office:

Science

Lab/Site/Org:

Argonne National Laboratory East

Facility Name:

Physics

Subject/Title:

Electrical Exposure While Helium Leak Testing a High Voltage Ion Source

Date/Time Discovered:

07/25/2011 09:35 (CTZ)

Date/Time Categorized:

07/25/2011 11:20 (CTZ)

Report Type:

Notification

Report Dates:

Notification	07/26/2011	17:48 (ETZ)
Initial Update		
Latest Update		

Final		
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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:

On 7/25/2011, at 9:35 a.m., an ion source engineer received a shock while performing helium leak tests on a high voltage source (i.e. Electron Cyclotron Resonance Charge Breeder). The ion source engineer had earlier changed out an element of the electron cyclotron resonance charge breeder on the high voltage platform. Consistent high background gas peaks in the built-in residual gas analyzer (RGA) remained after the change. A systematic process of trying to locate leaks was begun. At the time of the incident, the engineer was testing around the Electron Cyclotron Resonance Charge Breeder source. Using a Tygon line connected to a helium gas cylinder with a metal Swagelock fitting on the far end, the engineer was holding the fitting while spraying helium around a Lexan flange through which a 1/4 in. Polyflow cooling line ran into the source through a shielded housing. The source was on at the time and was set to 30 kV and 0.75 mA with a maximum limit setting of 4 mA. A spark jumped from the Polyflow tubing to the Swagelok fitting and to the right index finger, and likely to the grounded vacuum line a short distance away. The engineer was uncertain that he had received a shock or was just surprised at the spark event, but immediately stopped the test, went to the control room, and dialed 911. He was taken to the Medical Division for observation and evaluation. He was released back to full duty a short time later.

The Electrical Severity index for this incident was calculated to be 33 (Medium).

Cause Description:

Operating Conditions:

Normal

Activity Category:

Facility/System/Equipment Testing

Immediate Action(s):

The engineer shut down the source following the exposure, dialed 911, and was transported to the Medical Division via ambulance. The engineer had no specific physical complaints; an electrocardiogram (ECG) was done and was unchanged when compared to prior ECGs. Employee's vitals were stable; there was no evidence of entrance or exit burns. No injury was found and the employee was released to regular duty.

FM Evaluation: A formal investigation team has been formed to evaluate the incident and perform a causal analysis.

DOE Facility Representative

Input:

DOE Program Manager

Input:

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

Division or Project: Argonne National Laboratory

Plant Area: Building 203 ATLAS

System/Building/Equipment: Electron Cyclotron Resonance Charge Breeder

Facility Function: Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

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

HQ Summary: On July 25, 2011, an ion source engineer received a shock while performing helium leak tests on a high voltage source (i.e., Electron Cyclotron Resonance Charge Breeder). At the time of the incident, the engineer was testing around the Electron Cyclotron Resonance Charge Breeder source. Using a Tygon line connected to a helium gas cylinder with a metal Swagelok fitting on the far end, the engineer was holding the fitting while spraying helium around a Lexan flange through which a ¼-inch Polyflow cooling line ran into the source through a shielded housing. A spark jumped from the Polyflow tubing to the Swagelok fitting and to the right index finger, and likely to the grounded vacuum line a short distance away. The engineer was uncertain that he had received a shock or was just surprised at the spark event, but immediately stopped the test, went to the control room, and dialed 911. He was taken to the Medical Division for observation and evaluation. He was released back to full duty. The Electrical Severity index for this incident was calculated to be 33 (Medium). A formal investigation team has been formed to evaluate the incident and perform a causal analysis.

Similar OR Report Number:

Facility Manager:

Name	BRINDLE, SUSAN K
Phone	(630) 252-6286
Title	ORPS COORDINATOR

Originator:

Name	BRINDLE, SUSAN K
------	------------------

Phone	(630) 252-6286
Title	ORPS COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/25/2011	09:53 (CTZ)	Stuart Meredith	ANL
07/25/2011	10:00 (CTZ)	Gary Dyrkacz	ANL
07/25/2011	11:20 (CTZ)	Peter Littlewood	ANL
07/25/2011	11:20 (CTZ)	Peter Washburn	ASO
07/25/2011	11:20 (CTZ)	Paul Kearns	ANL

Authorized Classifier(AC):

11)Report Number: [SC--BHSO-BNL-BNL-2011-0020](#) After 2003 Redesign

Secretarial Office: Science

Lab/Site/Org: Brookhaven National Laboratory

Facility Name: Brookhaven National Laboratory (BOP)

Subject/Title: Fan Repair LOTO Less Than Adequate

Date/Time Discovered: 07/27/2011 15:00 (ETZ)

Date/Time Categorized: 07/29/2011 16:45 (ETZ)

Report Type: Notification

Report Dates:

Notification	08/02/2011	19:03 (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:

Subcontractor Involved: No

Occurrence Description: At Brookhaven National Laboratory (BNL), on July 14 2011, Facility and Operations (F&O) staff were performing corrective maintenance

(replacement of an exhaust fan) in an on-site apartment (Bldg 366). A wall switch in the kitchen powering the exhaust fan was used as the disconnecting means and LOTOed. After the work was complete, additional conversations led the workers to believe that there was a second wall switch powering the fan in a parallel configuration with the switch used for the LOTO. The workers contacted their union safety representative on July 15, 2011; who in turn contacted the Safety and Health Services Division (SHSD) at BNL. No injuries were reported as a result of this work.

The following week, Safety and Health Services Division (SHSD) staff conducted two initial interviews and as a result informed the F&O Operational Excellence Manager and the Facility Complex Manger that the event may be reportable to DOE. The events categorizer was then notified of the possibility of a reportable event on July 22, 2011. SHSD along with F&O, then reviewed the work package, conducted additional interviews and reviewed physical evidence. The results of this initial investigation confirmed that the single fan served two areas in the apartment through common ductwork (the kitchen area and the bathroom). It was confirmed that the single fan received power by two switches in parallel (not a 3 way circuit). The bathroom wall switch was not LOTOed. The event categorizer was notified by SHSD staff on July 27, 2011 and advised that the event be evaluated for reportability.

Cause Description:

Operating Conditions:

The roof mounted exhaust fan serving the kitchen and the bathroom was inoperative. All other facility systems were normal.

Activity Category:

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

Immediate Action(s):

- 1) Reported condition to BNL Event Categorizer.
- 2) Determined if the parallel configuration of switches is typical at the efficiency apartments.
- 3) Notified all South Complex staff of parallel configuration on exhaust fans (performed during the morning meeting).
- 4) Reminded all South Complex staff to immediately provide feedback to supervisor when work instructions cannot be followed as directed (preformed at the morning meeting).

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Yes.

Required:

Before Further Operation? No

By Whom:

By When:

Division or Project: Facility and Operations, South Complex
Plant Area: South Complex
System/Building/Equipment: Building 366, Efficiency Apartments
Facility Function: Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)
 01P--Inadequate Conduct of Operations - Inadequate Oral Communication
 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On July 27, 2011, the Safety and Health Services Division (SHSD) at Brookhaven National Laboratory determined they had a reportable event. On July 14, Facility and Operations (F&O) staff were replacing an exhaust fan in an on-site apartment in Building 366. A wall switch in the kitchen powering the exhaust fan was used as the disconnecting means and LOTO. After the work was completed, additional conversations led the workers to believe that there was a second wall switch powering the fan in a parallel configuration with the switch used for the LOTO. The workers contacted their union safety representative on July 15, who in turn contacted the SHSD. The following week, SHSD staff conducted two initial interviews and, as a result, informed the F&O Operational Excellence Manager and the Facility Complex Manger that the event may be reportable to DOE. SHSD, along with F&O, then reviewed the work package, conducted additional interviews, and reviewed physical evidence. The results of this initial investigation confirmed that the single fan served two areas in the apartment through common ductwork (the kitchen area and the bathroom). It was confirmed that the single fan received power by two switches in parallel (not a 3-way circuit). The bathroom wall switch was not LOTO. The event categorizer was notified. All South Complex staff was notified of the parallel configuration on the exhaust fans. No injuries were reported as a result of this work.

Similar OR Report Number:

Facility Manager:

Name	LEVESQUE, JOSEPH
Phone	(631) 344-4259
Title	FACILITY COMPLEX ENGINEER, SOUTH COMPLEX

Originator:

Name	SIERRA, EDWARD A
------	------------------

Phone	(631) 344-4080
Title	LLL/ORPS COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/29/2011	16:45 (ETZ)	P. Hayde	BNL
07/29/2011	16:45 (ETZ)	A. Janczewski	BHSO?DOE
07/29/2011	16:45 (ETZ)	R. Biscardi	BNL

Authorized Classifier(AC):

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