



Office of Health, Safety and Security



Monthly Analysis of Electrical Safety Occurrences

April 2012

Purpose

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

Key Observations

The number of electrical safety occurrences increased from 14 in March to 15 in April. Two of these occurrences resulted in electrical shocks, with one occurrence involving three separate shocks, for a total of four for the month. Also the number of electrical intrusion occurrences doubled in April while the number of lockout/tagout occurrences decreased from six to three. There was an improvement in hazards identification during April as 60 percent of the workers found problems with lockout/tagout implementation and conditions involving uncontrolled hazardous energy. There have been no high electrical severity occurrences reported in over eleven 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 and full report of the April occurrence reports is provided in Attachment 2.

Electrical Shock

There were two occurrences that reported electrical shocks for the month of April. One of these occurrences resulted in three separate shock incidents for a total of four electrical shocks for the month. Last month was the first time since January 2010 in which the DOE complex had a shock-free month. Figure 1 shows a 3-year trend of electrical shocks for the DOE complex. During this period, the average number of electrical shocks has remained below three per month. The majority of the shocks (about 75 percent) involved non-electrical workers. A summary of these electrical shock occurrences is provided below.

1. A worker received a shock while using a drill with mixing paddles to mix mortar. He was holding the drill with both hands and the shock was felt in both hands. As a safety precaution, the worker was evaluated by medical personnel and returned to work with no restrictions. Electricians inspected the drill and Ground Fault Circuit interrupter (GFCI) breaker and found them to be working properly. The initial condition of the GFCI breaker was identified as tripped. The Electricians also disassembled and inspected the extension cord and identified a fault within the cord. The cord was removed from service.
2. Three electricians individually received electrical shocks while working on an automatic transfer switch, which had been locked out and an absence of energy check had been performed. The source of the electrical energy was subsequently determined to be a back feed from a 120-volt circuit from a pump house through an interlock circuit with another pump house. The Electrical Section Manager began an investigation of the unexpected power and locked out interlock circuits. There were no injuries.

Figure 1 – Three-Year Trend of Electrical Shocks

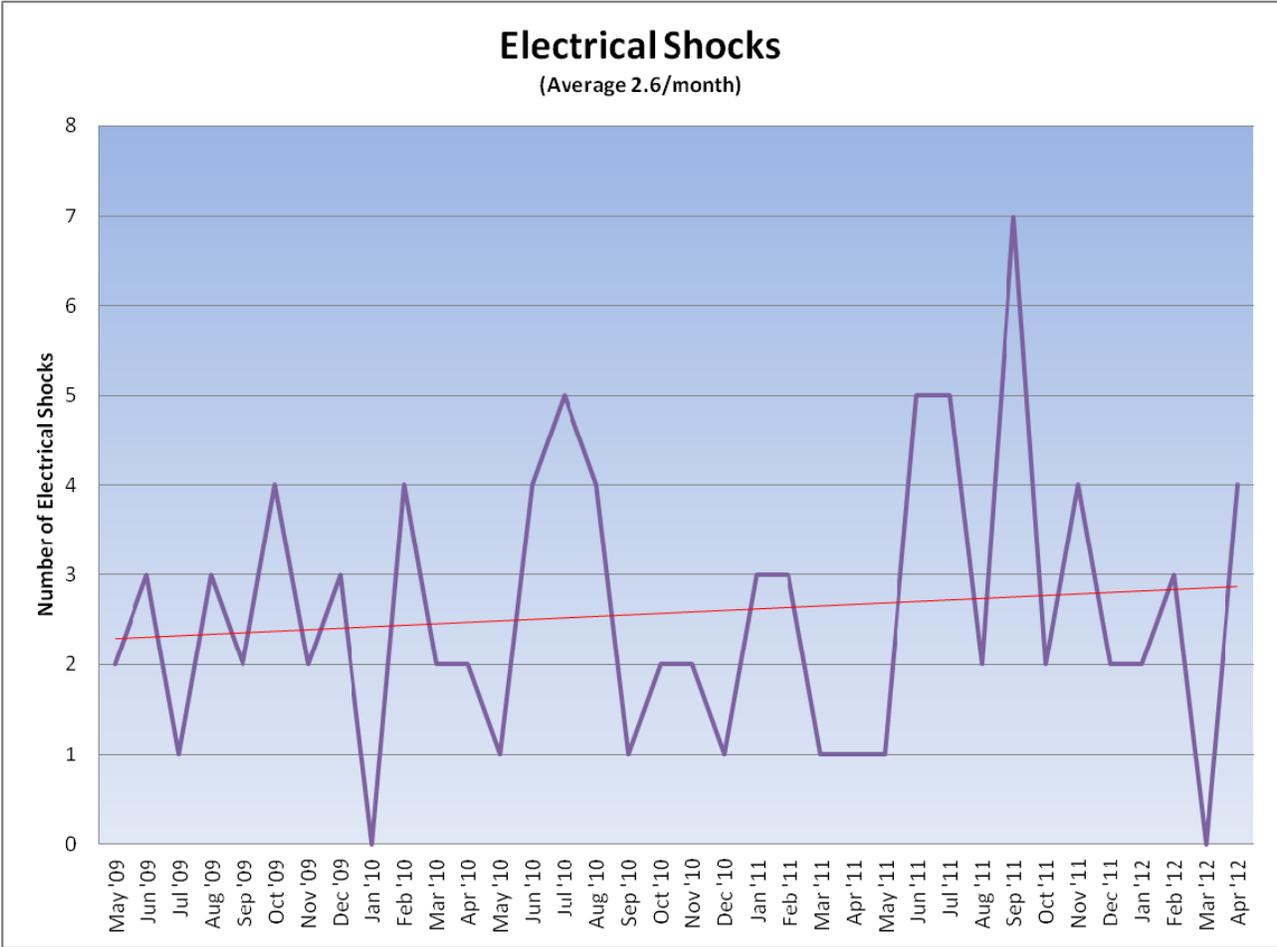
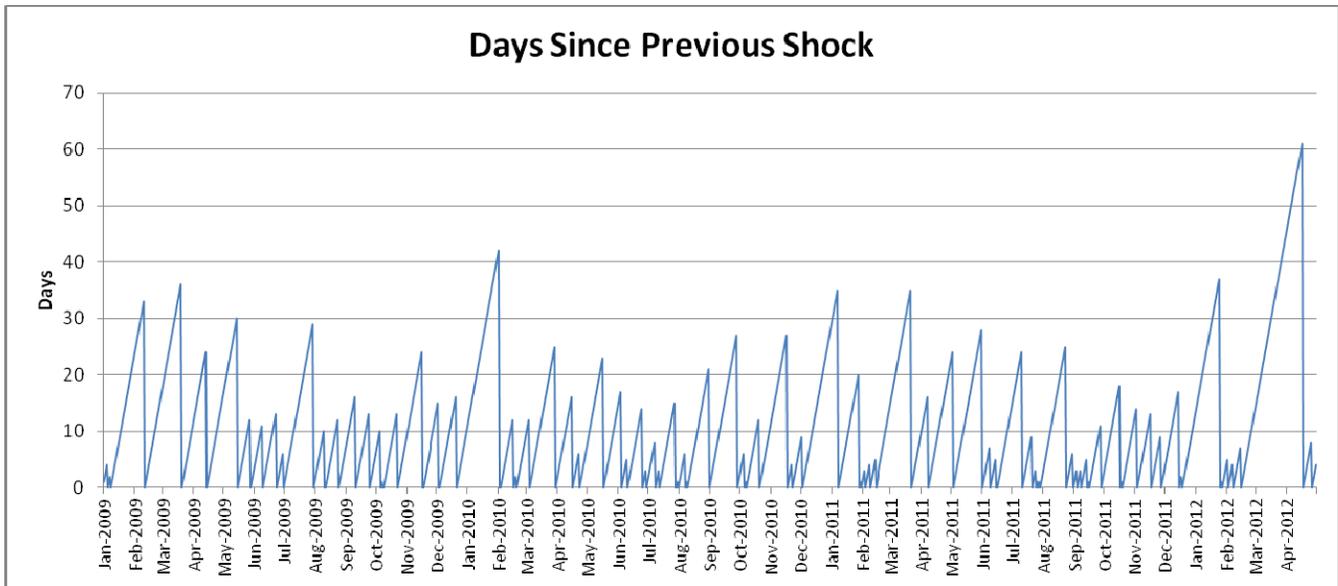


Figure 2 shows the number of days since the previous electrical shock for the DOE complex. The longest interval was 61 days as of April 16 and the present interval is 4 days as of April 30.

Figure 2 - Days since Previous Shock



Electrical Intrusion

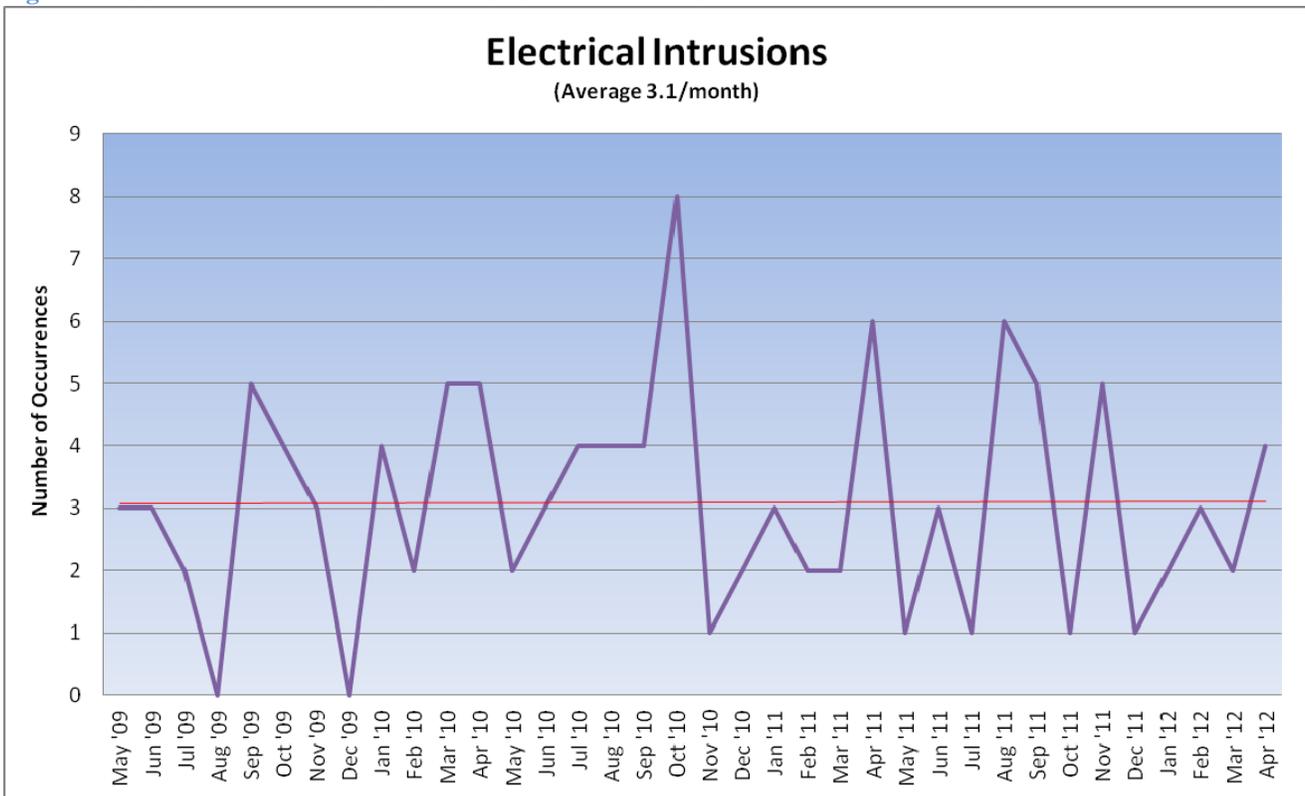
In April, the number of electrical intrusion occurrences (i.e., cutting/penetrating, excavating, or vehicle contact of electrical conductors) increased from two in March to four this month. These occurrences are summarized below.

1. A D&D electrician separated a conduit that supplied power to a lighting ballast and cut energized wires. The electrician noticed a spark when he cut the wires and immediately stepped back and notified his supervisor. The conduit he had separated was adjacent to a conduit he was stripping out at the time. The electrician failed to recognize that this ballast was supplied by a different circuit which had not yet been locked out. No shock or other injuries were sustained as a result of this event.
2. A subcontract worker observed a spark while cutting an electrical conduit stub-up flush with the floor with a reciprocating during demolition activities. The conduit stub-up contained an old energized 130-volt DC control conductor. A small building (pump house) was being prepared for demolition; one of the pre-demolition activities was to cut electrical conduit stub-ups flush with the floor and seal the openings. Prior to any pre-demolition activities the building electrical feeds were air gapped of all electrical power and absence of voltage was verified. The source of power was isolated and the worker was taken to an offsite medical facility for assessment and returned to the site later with no restrictions.
3. The bucket of a backhoe damaged a 480-volt electrical line during excavation activities. The damage to the electrical line caused the loss of electrical power to a blockhouse and trailers which are occupied by a Radiation Control group. Utility location marks indicated underground electrical power in this area; however, those markings were consistent with a concrete encased duct bank located almost directly below the location where this direct electrical line was encountered. Considerable planning, and review went into the excavation and the electrical line was not on any facility drawings.

- A grounded excavator hit and damaged a 1-inch PVC conduit containing a 120-volt electrical cable while personnel were excavating a trench to install electrical services. The insulated line within the conduit was not damaged and there were no injuries associated with the event. Personnel conducted a pre-job briefing and followed appropriate excavation procedures, including field markings of the existing utilities, the use of a field spotter and hand digging. The damaged conduit, which was not on the drawings, was located 8-inches deep and above an existing electrical utility duct bank shown to be approximately 2 feet underground on drawings. Utility locating equipment did not distinguish between the conduit and the electrical utility duct bank.

Figure 3 shows a 3-year trend of electrical intrusion occurrences for the DOE complex. During this period we see that the overall trend has remained flat. There were only two months (2009) when there were no reported occurrences.

Figure 3 – Three-Year Trend of Electrical Intrusion Occurrences



Hazardous Energy Control

In April there were three reported occurrences involving lockout/tagout (LOTO), which is a decrease from the six occurrences in March. Two of these occurrences resulted from not hanging locks and one involved not correctly performing a zero-energy verification check. The use of proximity detectors for zero-energy checks is not reliable. Two of these occurrences involved subcontractors, which underscores the importance of ensuring that subcontractors understand and follow all hazardous energy control procedures and policies and that adequate

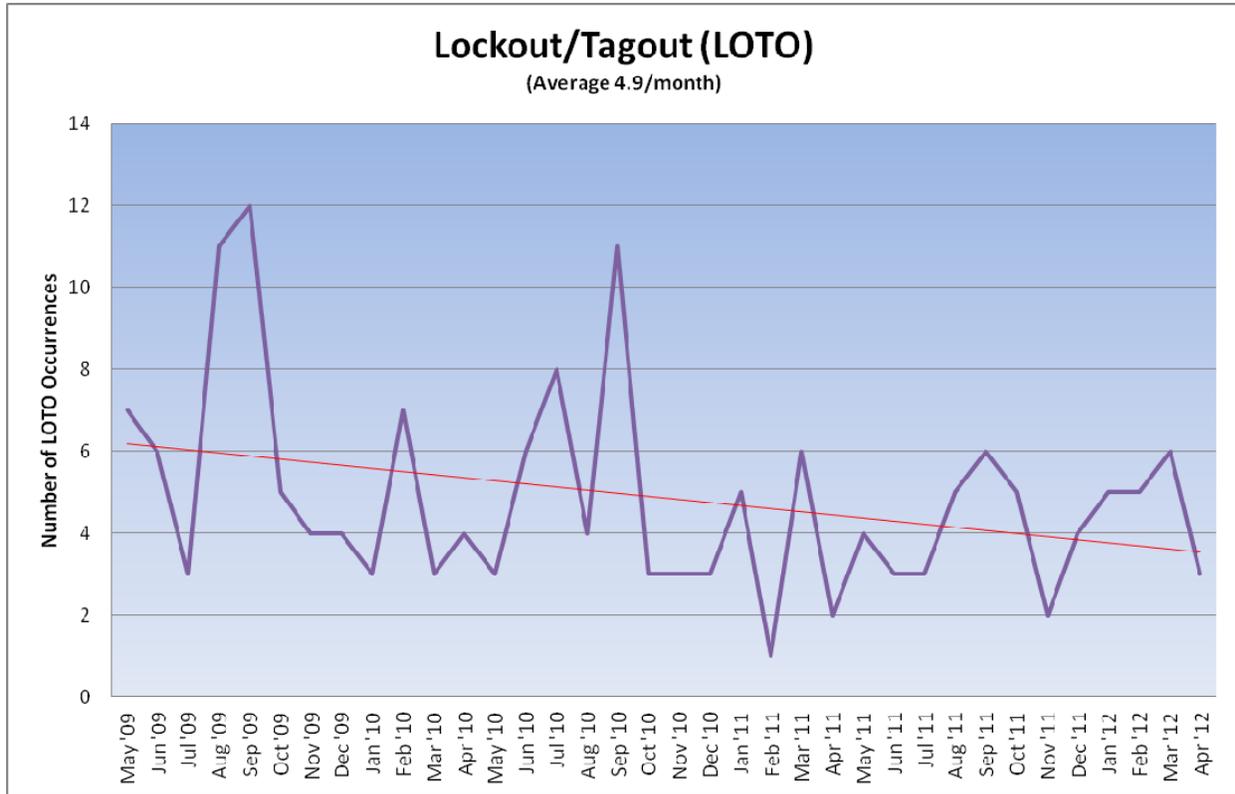
management oversight is provided to enforce compliance. Summaries of these events are provided in the following two sections.

Occurrences Involving Lockout/Tagout

1. Electricians were assisting a subcontract worker with the installation of equipment on cylinder handling system cranes. The work was being performed using a single-source isolation, non-permitted LOTO. A functional check was performed without arc flash personal protective equipment, which is required to be worn during zero-energy verification. The electricians and the subcontractor proceeded to apply personal locks and performed a zero-energy test by using a proximity tester. A facility representative, who was observing, questioned whether checking voltages with a proximity tester was adequate to verify zero-energy. Procedures require the use of an adequately rated voltage detector to test each phase conductor or circuit part to verify that each is de-energized. Work was paused until controls could be reviewed. Discussions among maintenance supervision and management concluded that using a proximity tester did not meet the requirements of a zero-energy verification as defined in the site procedure.
2. Subcontract electricians installed a Single Point Lockout/Tagout (SPLT) with no locks/hasps. The subcontractors were installing electrical service to a rigging storage building and the SPLT was to be used to electrically isolate a portion of this work. A safety manager, who was observing the work area, found that the de-energized disconnect had two SPLT tags installed, but had no locks/hasps. The work was immediately stopped. The subcontract electricians did not fully understand the requirements to implement a SPLT and facility personnel did not fulfill their responsibility to ensure the subcontractor SPLT was implemented correctly.
3. A maintenance mechanical employee removed a 120-volt refrigerant monitor without following the lockout/tagout policy. The employee was removing refrigerant for the unit and the day before had requested that a work order be started to remove and save the refrigerant monitor. The employee turned off the circuit breaker and conducted a zero-voltage test on the labeled hazard category "0" circuit using the proper personal protective equipment. The employee became distracted and did not properly lock and tag the circuit before removing the refrigerant monitor. The employee conducted the work without the proper approval and documentation. The circuit was not administratively locked out.

Figure 4 shows a 3-year trend of LOTO occurrences for the DOE complex. During this period we have seen a general decrease in the number of occurrences involving the implementation of lockout/tagout for electrical work.

Figure 4 – Three-Year Trend of Lockout/Tagout Occurrences



Occurrences Involving Hazardous Energy Control Procedure Noncompliance

1. Teamsters mobilized a manlift so that pipefitters could perform maintenance on a sight glass on an elevated water tank, which was approximately 20 feet off the ground. The manlift was positioned at one end of the tank approximately 30 feet from 13.8 kV overhead power lines. The work required the manlift to boom away from the power lines. The relevant electrical safety procedure requires specific steps to be taken when any work has the potential to come within 25 feet of the power lines. Therefore, although the truck and boom were 30 feet from the overhead power lines and boomed away from the lines during the work, the fact the manlift had the capability to encroach within the 25 foot boundary should have been recognized and the steps in the procedure implemented. There were no injuries or equipment damage as a result of this incident.
2. An employee in the Main Gate Trailer reset a tripped 120-volt electrical circuit breaker without having the required training or PPE. Supervision was notified and the employee was instructed not to operate circuit breakers.

Occurrences Involving the Discovery of Uncontrolled Hazardous Energy

1. While working on punch list items at the X-152 Phase 1 Trailer, a project superintendent discovered signs that an electrical short circuit had occurred involving wiring that was to provide power from a transformer to equipment in the IT Room of

Area 2, Trailer 2-I. Upon investigation, heavy soot was discovered on the floor at the base of a wall. The wiring was tagged-out and other appropriate actions were taken.

2. A safety engineer identified energized electrical power circuits (120VAC) that were exposed to possible contact at a visiting vendor's display table for an Earth Week Environmental Vendor Fair. The equipment was a power strip that the vendor was selling, which had been modified (exposed circuits) for display. The circuit was de-energized.

Electrical Near Miss

In April, there were six occurrences that were considered to be an electrical near miss. This is an increase from the three near-miss occurrences reported in March. Four of these near-miss occurrences were discussed in the Electrical Intrusion section and the fifth near-miss occurrence was the second occurrence discussed in the Hazardous Energy Control section under Occurrences Involving the Discovery of Uncontrolled Hazardous Energy. The sixth near-miss involved a researcher who performed a zero energy check on a capacitor without wearing the proper voltage rated gloves, which did not conform to the requirements of National Fire Protection Association 70E. Additionally, the voltage probe used to perform the check was insufficiently rated for testing the potential energy of the capacitors. The capacitors, fully charged had a potential for 2,250 volts and the researcher used a probe rated for up to 1,000 volts. There was a possibility of slightly burned hands (if not wearing gloves) from a thermal or small arc flash within the arc flash boundary of 10 inches. The capacitor was not likely to explode given the task (zero energy check). Management was notified of the event and an incident investigation was initiated.

Monthly Occurrences Tables

Table 1 shows a breakdown of the outcomes, performance issues, and worker types associated with the electrical safety occurrences for March 2012.

Table 1 - Breakdown of Electrical Occurrences

Number of Occurrences	Involving:	Last Month
4	Electrical Shocks	0
0	Electrical Burns	0
3	Hazardous Energy Control (LOTO)	6
3	Inadequate Job Planning	3
2	Inadvertent Drilling/Cutting of Electrical Conductors	2
2	Excavation of Electrical Conductors	0
0	Vehicle Intrusion of Electrical Conductors or Equipment	0
6	Electrical Near Misses	3
5	Electrical Workers	10
10	Non-Electrical Workers	4

Number of Occurrences	Involving:	Last Month
4	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 fifteen occurrence reports after two reports ([NA--YSO-BWXT-Y12SITE-2012-0022](#) and [SC--BHSO-BNL-BNL-2012-0015](#)) were culled out for a power outage and a non-electrical hazard.

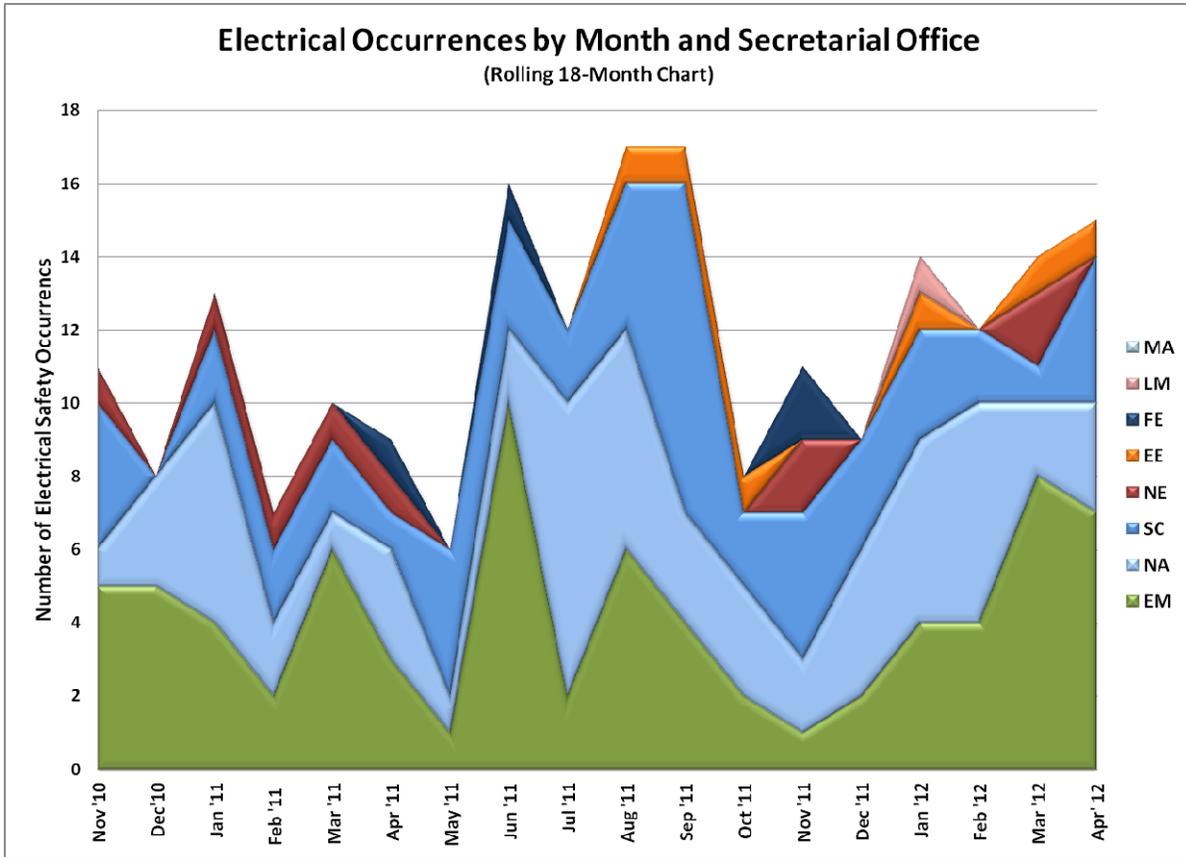
Table 2 provides a summary of the electrical safety occurrences for CY 2012. The present monthly average is the same average seen in 2005 and 2006.

Table 2 - Summary of Electrical Occurrences

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
April	15	4	0	0
March	14	0	0	0
February	12	3	0	0
January	14	2	0	0
2012 total	55 (avg. 13.8/month)	5	0	0
2011 total	136 (avg. 11.3/month)	36	5	0
2010 total	155 (avg. 12.9/month)	28	2	0
2009 total	128 (avg. 10.7/month)	25	3	0
2008 total	113 (avg. 9.4/month)	26	1	0
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

Figure 5 shows the distribution of electrical safety occurrences by Secretarial Office. The Office of Environmental Management (EM), the Office of Science (SC), and the National Nuclear Security Administration (NA) typically report the most occurrences of all the offices. Over the past several months EM has increased while NA and SC decreased until April.

Figure 5 - Electrical Occurrences by Month and Secretarial Office



Electrical Severity

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

Electrical Severity Scores

The electrical severity scores (ES) are calculated using 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 did not have an ES score. The other ten occurrences are classified as shown in Table 3. The actual score for each occurrence is provided in Attachment 1.

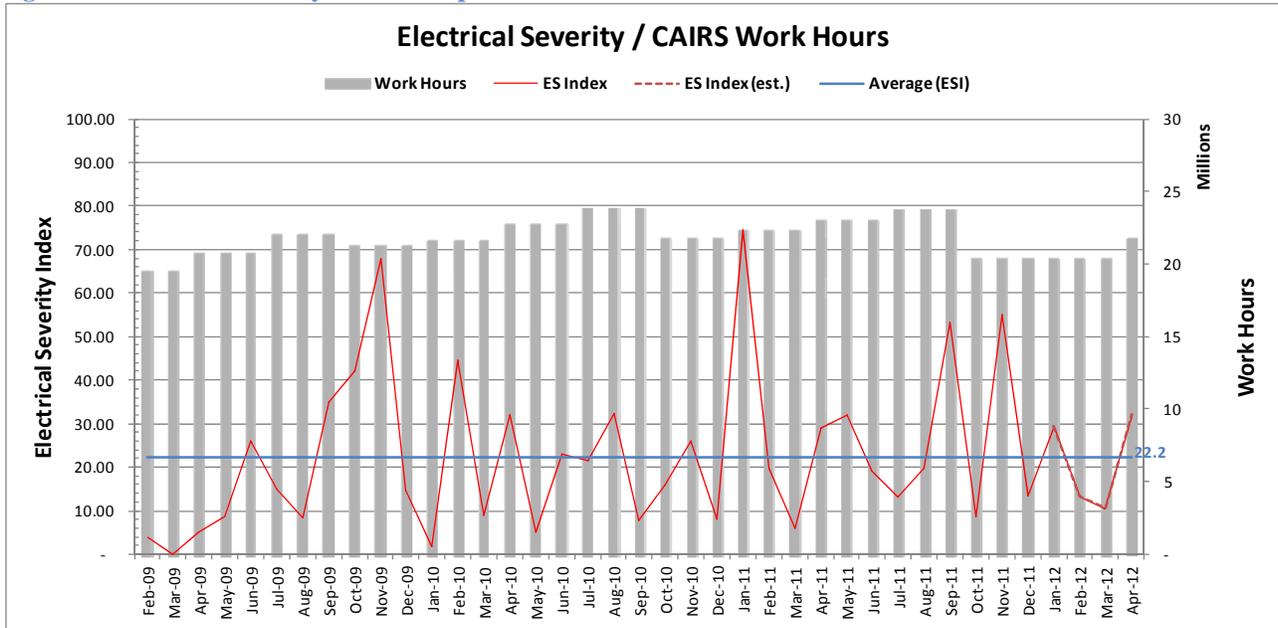
Table 3 – Classification of Electrical Safety Occurrences by ES Score

Occurrence Classification	Electrical Severity Score	Number of Occurrences
HIGH	≥ 1750	0
MEDIUM	31-1749	9
LOW	1-30	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. Figure 6 shows a calculated ESI for the DOE complex and Table 4 shows the ESI and how it has changed from the previous month.

Figure 6 - Electrical Severity Index Compared to Work Hours



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

Table 4 - Electrical Severity Index

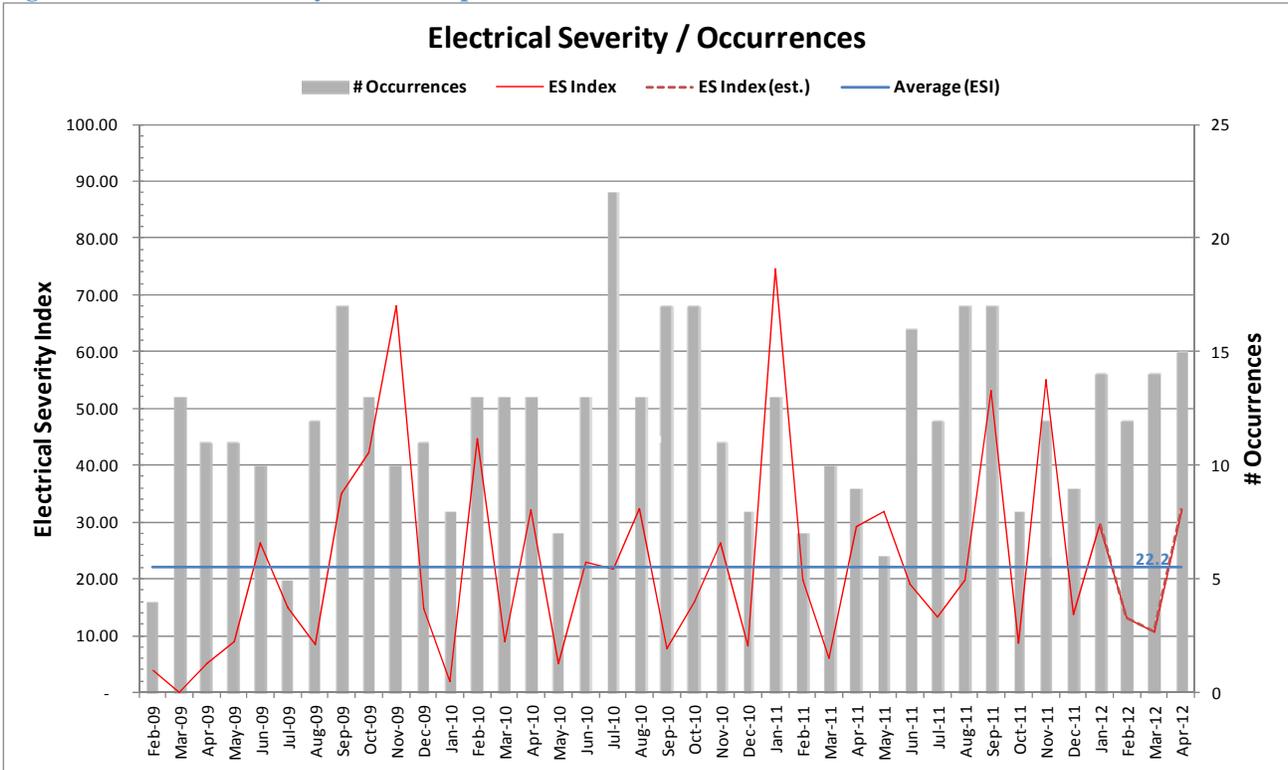
Category	March	April	Δ
Total Occurrences	14	15	+1
Total Electrical Severity	1,090	3,520	+2,430
Estimated Work Hours	20,370,655* (21,561,150)	21,860,922	+1,490,267
ES Index	10.70* (10.11)	32.20	+21.50
Average ESI	21.8	22.2	+0.4

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

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

Figure 7 shows the ESI with the number of Occurrences instead of Work Hours.

Figure 7 - Electrical Severity Index Compared to Number of Occurrences



Following a decrease over the past two months, the average ESI (22.2) has increased. The lowest average ESI was 19.2 in June 2010. Figure 8 shows the number of days since the previous high severity occurrence. The present interval is 363 days as of April 30. The previous longest interval was 181 days in 2009.

Figure 8 - Days since Previous High Severity Occurrence

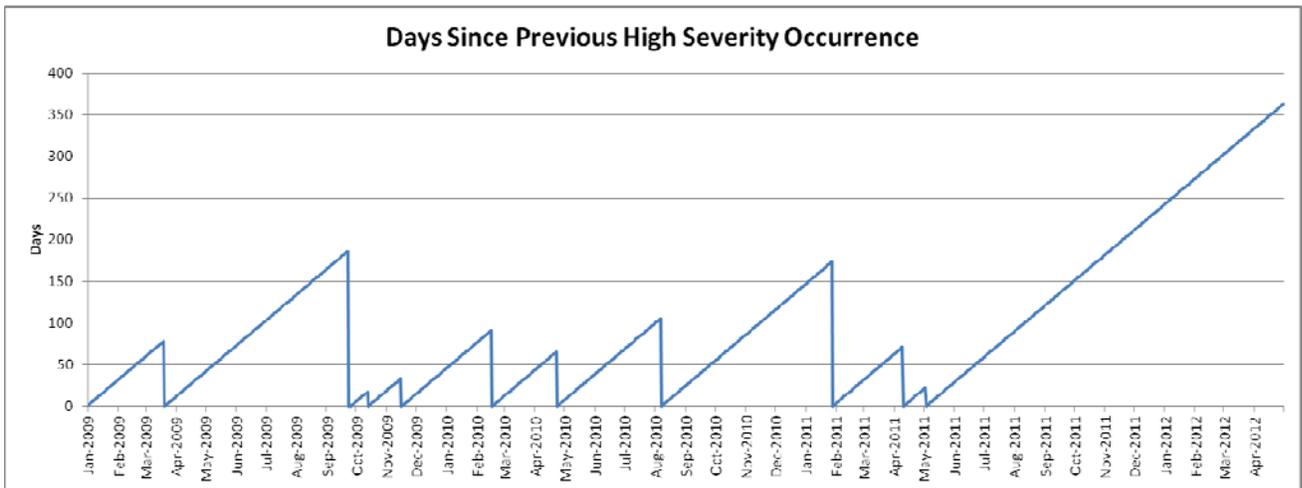
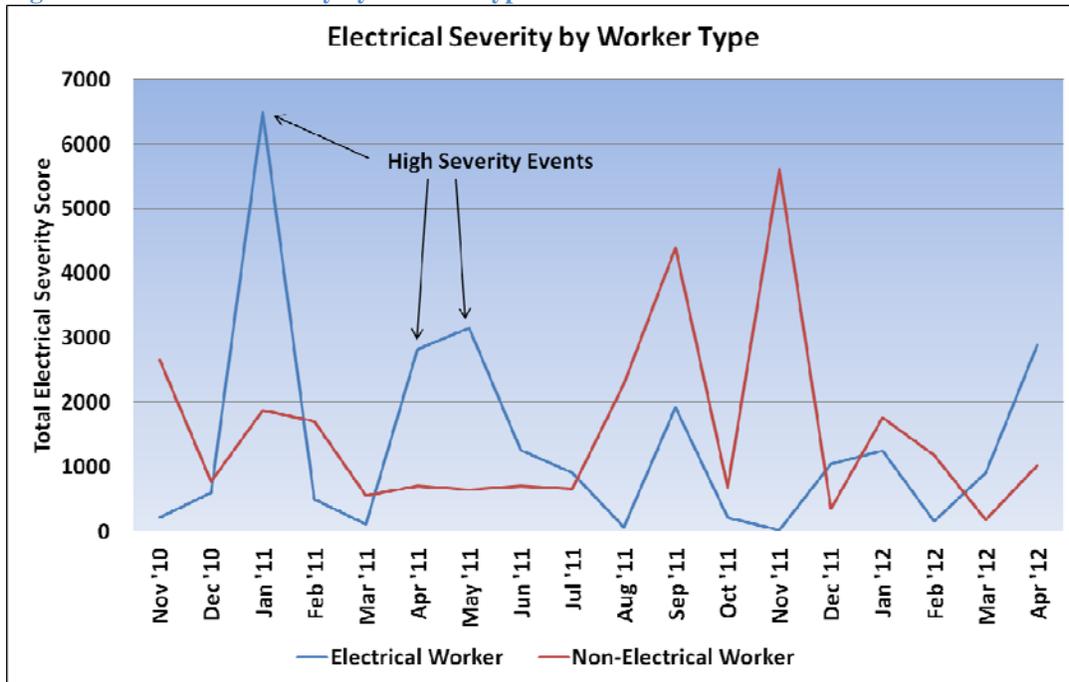


Figure 9 shows the total electrical severity score by worker type for each month.

Figure 9 – Electrical Severity by Worker Type



Electrical Workers were involved in the fewest number of occurrences but had three High-Severity events. Events involving Non-Electrical Workers usually have Low to Medium electrical severity scores but have a higher total score per month because of more occurrences.

Summary of Occurrences by Severity Band

For the interval April 2011 through April 2012 (current month and the past 12), Figures 10 and 11 summarize occurrences by severity band and month of discovery date by percentage of total occurrences in month and number of occurrences in month.

Figure 10 - Occurrences by Electrical Severity Band (Percentage)

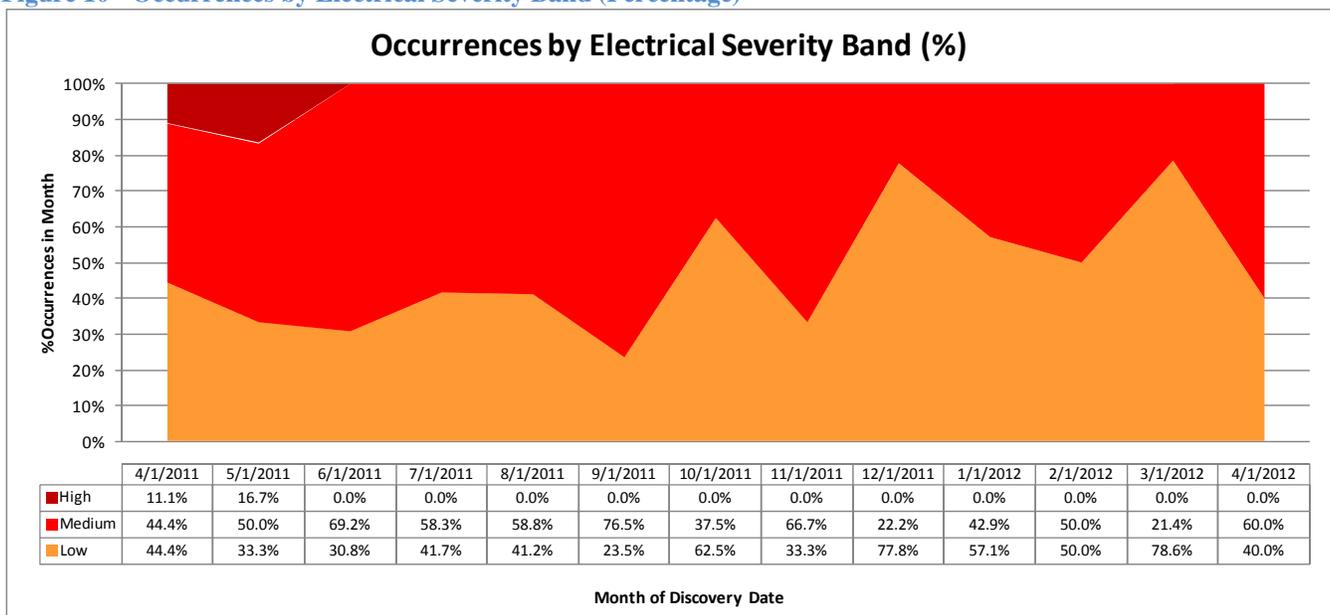
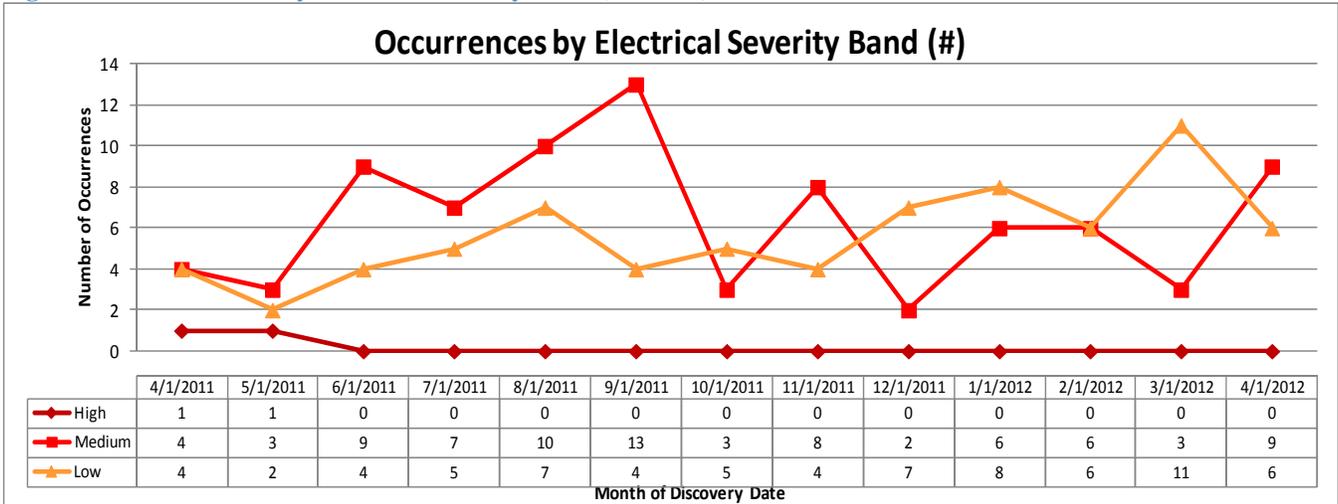


Figure 11 - Occurrences by Electrical Severity Band (Number)

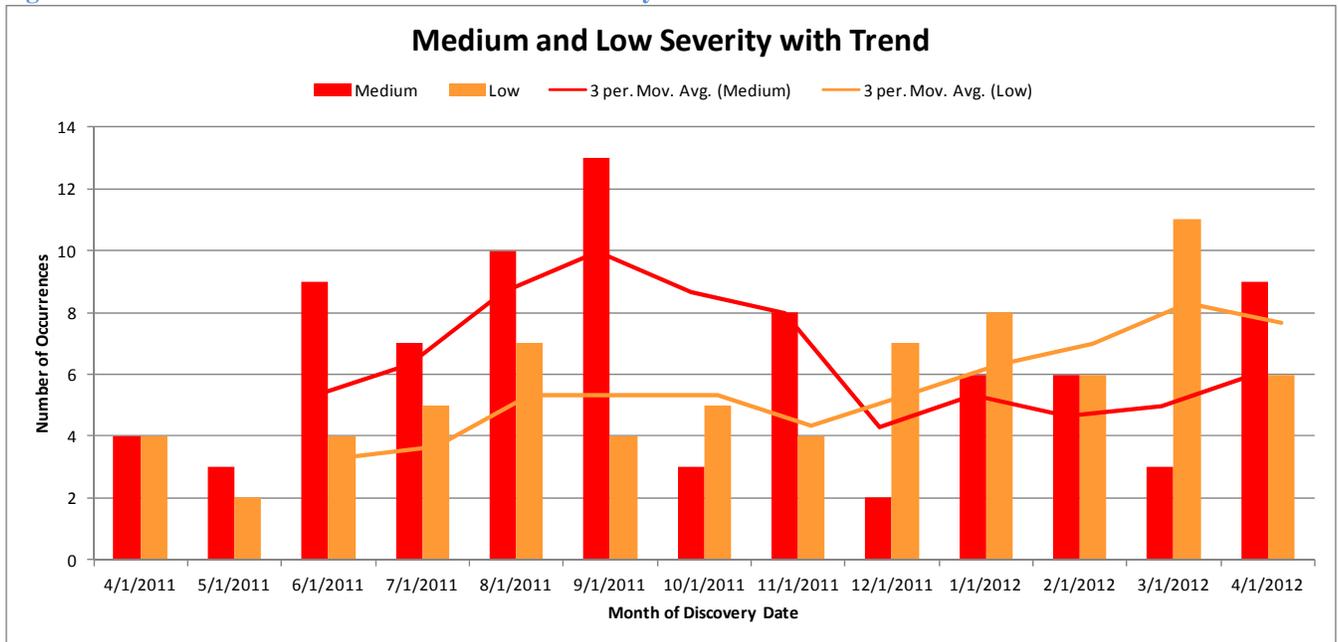


What can be seen from the previous two charts is that the number of occurrences with High electrical severity scores has remained at zero for the past 11 months and that the number of occurrences with Medium scores has increased above the number of Low severity occurrences.

Medium and Low Severity with Trend

Figure 12 focuses on the Medium and Low severity data series for April 2011 through April 2012. Trend lines are included for each, using a 3-month moving average.

Figure 12 - Trend of Medium and Low Electrical Severity Occurrences



The 3-month moving average shows an increasing trend for Medium severity occurrences while Low severity occurrences decreased since last month. A higher percentage of Low severity occurrences is preferred.

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 – April 2012

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-2012-0008	A researcher performed a zero energy check on a capacitor without wearing the proper voltage rated gloves.									3	10(3)	1400
2	EM--PPPO- BWCS- PORTDUCON- 2012-0003	A functional check was performed without arc flash PPE and a proximity tester was used for the zero-energy verification on 480V.				X					4	2E(3)	1050
3	EM--PPPO-FBP- PORTSDD-2012- 0001	Electrical short circuit causes spark/flash damage to floor and wall of trailer.									3	2E(2)	0
4	EM-ID--CWI- RWMC-2012-0001	A D&D electrician separated a conduit supplying power to a light ballast and cut energized wires.							X		3	2E(2)	160
5	EM-RL--WCH- DND-2012-0006	HEC procedures not implemented when a manlift was positioned 30 feet from 13.8 kV overhead lines.					X				4	2E(3)	0
6	EM-RP--WRPS- TANKFARM-2012- 0007	Electrical hazard labeling of an electrical enclosure was improper.					X				3	10(2)	0
7	EM-SR--PSC- SWPF-2012-0003	A worker received a 120V shock to both hands while using a drill with paddles to mix mortar. A faulty extension cord was discovered.	X								2	2E(1)	120
8	EM-SR--SRNS- CPWM-2012-0006	Subcontract electrical workers installed a SP LT with no locks/hasps.				X					4	2E(3)	0
9	NA--PS-BWP- PANTEX-2012- 0040	Three electricians received electrical shocks because of an unknown back feed while working on an ATS.	XXX				X				2	2E(1)	330
10	NA--SS-SNL- NMFAC-2012-0002	A maintenance mechanical employee removed a 120V refrigerant monitor without following the LOTO policy.				X					4	2E(3)	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	NA--YSO-BWXT-Y12SITE-2012-0019	A subcontract cut an energized 130VDC electrical conduit with a saw and observed a spark.							X		2	2E(1)	210
12	SC--BHSO-BNL-BNL-2012-0013	Exposed energized 120V power circuit discovered at display table.									3	2E(2)	20
13	SC--BHSO-BNL-BNL-2012-0014	An employee resets a tripped circuit breaker without required training or PPE.									3	2E(3), 10(2)	0
14	SC--TJSO-JSA-TJNAF-2012-0005	Bucket of a backhoe damaged an energized 480V electrical line.						X			3	2E(2)	50
15	SC-ORO--ORNL-X10CENTRAL-2012-0004	A grounded excavator hit and damaged a conduit containing a 120V electrical cable.						X			3	10(3)	70
	TOTAL		4 (note)	0	0	3	3	2	2	0			

Note: Although there were only two “events” reporting electrical shocks this month, event No. 9 had three separate incidents.

Key

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

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

Attachment 1

Electrical Safety Occurrences – April 2012

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-2012-0008	A researcher performed a zero energy check on a capacitor without wearing the proper voltage rated gloves.	X				X	X	X		X	X		X
2	EM--PPPO-BWCS-PORTDUCON-2012-0003	A functional check was performed without arc flash PPE and a proximity tester was used for the zero-energy verification on 480V.	X		X		X	X	X		X			
3	EM--PPPO-FBP-PORTSDD-2012-0001	Electrical short circuit causes spark/flash damage to floor and wall of trailer.		X			X				X			
4	EM-ID--CWI-RWMC-2012-0001	A D&D electrician separated a conduit supplying power to a light ballast and cut energized wires.	X			X					X			X
5	EM-RL--WCH-DND-2012-0006	HEC procedures not implemented when a manlift was positioned 30 feet from 13.8 kV overhead lines.		X			X			X				
6	EM-RP--WRPS-TANKFARM-2012-0007	Electrical hazard labeling of an electrical enclosure was improper.		X			X				X			
7	EM-SR--PSC-SWPF-2012-0003	A worker received a 120V shock to both hands while using a drill with paddles to mix mortar. A faulty extension cord was discovered.		X		X					X			
8	EM-SR--SRNS-CPWM-2012-0006	Subcontract electrical workers installed a SP LT with no locks/hasps.	X		X		X				X			
9	NA--PS-BWP-PANTEX-2012-0040	Three electricians received electrical shocks because of an unknown back feed while working on an ATS.	X			X					X			
10	NA--SS-SNL-NMFAC-2012-0002	A maintenance mechanical employee removed a 120V refrigerant monitor without following the LOTO policy.		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--YSO-BWXT-Y12SITE-2012-0019	A subcontract cut an energized 130VDC electrical conduit with a saw and observed a spark.		X	X	X					X			X
12	SC--BHSO-BNL-BNL-2012-0013	Exposed energized 120V power circuit discovered at display table.		X			X				X			X
13	SC--BHSO-BNL-BNL-2012-0014	An employee resets a tripped circuit breaker without required training or PPE.		X			X	X	X		X			
14	SC--TJSO-JSA-TJNAF-2012-0005	Bucket of a backhoe damaged an energized 480V electrical line.		X	X	X					X			X
15	SC-ORO--ORNL-X10CENTRAL-2012-0004	A grounded excavator hit and damaged a conduit containing a 120V electrical cable.		X		X					X			X
	TOTAL		5	10	4	6	9	3	3	1	14	1		6

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 55685 OR(s) with 58995 occurrences(s) as of 5/7/2012 12:00:00 PM
Query selected 15 OR(s) with 15 occurrences(s) as of 5/7/2012 2:40:12 PM

Download this report in Microsoft Word format. 

1)Report Number: [EE-GO--NREL-NREL-2012-0008](#) **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: Near miss - lack of proper PPE creates potential exposure to electrical shock

Date/Time Discovered: 04/04/2012 12:00 (MTZ)

Date/Time Categorized: 04/11/2012 10:00 (MTZ)

Report Type: Notification

Report Dates:

Notification	04/13/2012	15:41 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3

Reporting Criteria: 10(3) - A near miss to an otherwise ORPS reportable event, where something physically happened that was unexpected or unintended, or where no or only one barrier prevented an event from having a reportable consequence.
The significance category assigned to the near miss must be based on an evaluation of the potential risks and extent of personnel exposure to the hazard. (1 of 3 criteria - This is a SC 3 occurrence)

Cause Codes:

ISM:

Subcontractor Involved: No

Occurrence Description: Summary of the reportable event:
A line manager reported one of his researchers performed a zero energy check (as the lockout tagout verification step) on a capacitor without wearing the proper voltage rated gloves. Additionally, the voltage probe used to perform the zero energy check was insufficiently rated for testing the potential energy of the capacitors. The capacitors, fully charged had a potential for 2250 volts and the researcher used a probe rated for up to 1000 volts. Failure to wear proper gloves when conducting a zero energy check did not conform with the requirements of NFPA 70E. Given the

operating parameters, this event was calculated to be a medium severity, applying the EFCOG electrical severity calculation. There was a possibility of slightly burned hands (if not wearing gloves) from a thermal or small arc flash within the arc flash boundary of 10 inches. According to NREL's electrician there was not enough energy to damage the meter. The capacitor was not likely to explode given the task (zero energy check). EHS management was notified of the event on April 4, 2012 and after subsequent analysis, the event was determined to be reportable as an ORPS near miss on April 11, 2012.

Details:

During the week of February 27, 2012 a researcher was diagnosing a problem on the Spire 4600 flash Solar Simulator located in the Outdoor Test Facility (OTF) Lab 105. The researcher noticed that the capacitors used to flash the lamps were taking longer to charge on the first flash of the day then for subsequent flashes. This indicated to the researcher that there may be a problem with the high voltage relay used to discharge the capacitors.

The researcher locked and tagged out the power to the system and discharged the systems capacitors by flashing the lamps per the system's operating manual. Knowing that the capacitors had just been discharged through the lamps and waiting the equipment manufacturer's suggested time of 20 minutes, the researcher proceeded to open the control panel for the system and measure the voltage across the relay which is used to discharge the capacitors. The voltage across the relay was measured using a Fluke model 87 multimeter and probes each rated at 1000 volts. 400 volts was measured across the relay indicating that the relay had failed and that the capacitor was not being discharged completely down to 0.0 volts.

The system was left locked/tagged out overnight which allowed the capacitor to discharge as the relay failed in a high impedance (several M ohms) state. The researcher re-measured the capacitor voltage potential the next morning, which indicated 0.0 volts on the capacitor using the same meter and probes. The researcher then replaced the defective relay.

Cause Description:

Operating Conditions:

Activity Category:

Immediate Action(s):

Normal Operations

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

Immediate actions taken:

The line manager was out of the office the week of February 27 to March 2 when this event occurred. Upon learning of the equipment repair methods, the line manager began collecting information to further understand what had taken place. He reported the situation to EHS on April 4, 2012 after determining there was a work practice deficiency and a

hazard potential.

An incident investigation has been initiated.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Yes.

Required:

Before Further Operation? No

By Whom: Line Management

By When:

Division or Project:

National Center for Photovoltaics

Plant Area:

South Table Mountain

System/Building/Equipment: Outdoor Test Facility

Facility Function:

Solar Activities

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance

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

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

12K--EH Categories - Near Miss (Could have been a serious injury or fatality)

14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On April 4, 2012, a line manager reported one of his researchers performed a zero energy check on a capacitor without wearing the proper voltage rated gloves. Failure to wear proper gloves when conducting a zero energy check did not conform to the requirements of National Fire Protection Association 70E. Additionally, the voltage probe used to perform the zero energy check was insufficiently rated for testing the potential energy of the capacitors. The capacitors, fully charged had a potential for 2,250 volts and the researcher used a probe rated for up to 1,000 volts. There was a possibility of slightly burned hands (if not wearing gloves) from a thermal or small arc flash within the arc flash boundary of 10 inches. According to National Renewable Energy Laboratory's electrician there was not enough energy to damage the meter. The capacitor was not likely to explode given the task (zero energy check). Management was notified of the event and an incident investigation was initiated.

Similar OR Report Number:

Facility Manager:

Name	JORDAN, MAUREEN Y
------	-------------------

Phone	(303) 275-3248
Title	EHS 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
04/05/2012	17:00 (MTZ)	Pete Dailey	DOE GO

Authorized Classifier(AC):

2)Report Number: [EM--PPPO-BWCS-PORTDUCON-2012-0003](#) After 2003 Redesign

Secretarial Office: Environmental Management

Lab/Site/Org: Portsmouth Gaseous Diffusion Plant

Facility Name: Portsmouth Duf6 Conversion Plant

Subject/Title: Incorrect Method Used to Perform Zero-Energy Verification

Date/Time Discovered: 04/17/2012 09:30 (ETZ)

Date/Time Categorized: 04/17/2012 11:20 (ETZ)

Report Type: Notification/Final

Report Dates:

Notification	04/19/2012	17:54 (ETZ)
Initial Update	04/19/2012	17:54 (ETZ)
Latest Update	04/19/2012	17:54 (ETZ)
Final	04/19/2012	17:54 (ETZ)

Significance Category: 4

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

Cause Codes:

ISM: 4) Perform Work Within Controls

Subcontractor Involved: Yes
Crane One

Occurrence Description: BWCS Electricians were assisting a subcontractor in the installation of equipment on Cylinder Handling System cranes. The work was being performed under a troubleshoot and repair work package as a single source isolation, non-permitted lockout/tagout in accordance with procedure BWCS-X-GFP-0216, Lockout/Tagout(LOTO). The subcontractor was trained to the BWCS procedure. BWCS personnel interpreted the

requirement for working a single source isolation, non-permitted lockout/tagout activity as a functional check. A functional check was performed by verifying that the crane would not work when the disconnect was opened. The subcontractor agreed that a functional check was acceptable. BWCS personnel and the subcontractor proceeded to apply personal locks and performed the zero energy test by using a proximity tester.

A DOE Facility Representative who was observing the work activity questioned whether checking voltages with a proximity tester was adequate to verify zero-energy. Procedure BWCS-X-GFP-0216 states, For LOTOs that will have personnel working on or near exposed electrical conductors, perform a zero-energy verification, as follows: (In Part) Use an adequately rated voltage detector to test each phase conductor or circuit part to verify that each conductor/part is de-energized. Work was paused until controls could be reviewed.

Discussions among maintenance supervision and the ES&H Manager concluded that performing voltage verification with a proximity tester does not meet the requirements of a zero-energy verification as defined in the site procedure. BWCS electrical safety procedure BWCS-U-SHP-0214 is very vague on zero energy verifications.

The FAC REP also commented that no PPE was worn when the functional check was performed. BWCS electrical safety program requires arc flash PPE be worn during zero-energy verification. However, there is no requirement for PPE when performing a functional check. The failure to wear proper PPE during zero energy verification constitutes a violation of site procedures.

Cause Description:

Operating Conditions: Normal

Activity Category: Maintenance

Immediate Action(s): Paused work until hazard controls could be reviewed.

FM Evaluation:

DOE Facility Representative Input:

DOE Program Manager Input:

Further Evaluation is Required: No

Division or Project: B&W Conversion Services, LLC

Plant Area: Grid Map Location F2

System/Building/Equipment: Cylinder Handling System, X-1300

Facility Function: Uranium Conversion/Processing and Handling

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

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

HQ Summary:

On April 17, 2012, BWCS Electricians were assisting a subcontractor in the installation of equipment on Cylinder Handling System cranes. The work was being performed under a troubleshoot and repair work package as a single source isolation, non-permitted lockout/tagout in accordance with procedure BWCS-X-GFP-0216, Lockout/Tagout (LOTO). The subcontractor was trained to the BWCS procedure. BWCS personnel interpreted the requirement as a functional check. A functional check was performed without the arc flash personal protective equipment which is required to be worn during zero-energy verification. BWCS personnel and the subcontractor proceeded to apply personal locks and performed the zero energy test by using a proximity tester. A Facility Representative who observed the work activity questioned whether checking voltages with a proximity tester was adequate to verify zero-energy. Procedure BWCS-X-GFP-0216 requires the use of an adequately rated voltage detector to test each phase conductor or circuit part to verify that each is de-energized. Work was paused until controls could be reviewed. Discussions among maintenance supervision and Management concluded that performing voltage verification with a proximity tester does not meet the requirements of a zero-energy verification as defined in the site procedure.

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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04/17/2012	11:25 (ETZ)	Mark Miller	BWCS
04/17/2012	11:31 (ETZ)	Joe Roberts	BWCS
04/17/2012	11:31 (ETZ)	Michelle Reichert	BWCS
04/17/2012	11:45 (ETZ)	John Saluke	DOE PPPO
04/17/2012	11:47 (ETZ)	Dewintus Perkins	DOE PPPO
04/17/2012	11:48 (ETZ)	Tony Takacs	DOE PPPO
04/17/2012	12:20 (ETZ)	Pete Burban	DOE PPPO
04/17/2012	12:25 (ETZ)	Jack Zimmerman	DOE PPPO

Authorized Classifier(AC): Beth Keener Date: 04/18/2012

3)Report Number: [EM--PPPO-FBP-PORTSDD-2012-0001](#) After 2003 Redesign
Secretarial Office: Environmental Management
Lab/Site/Org: Portsmouth Gaseous Diffusion Plant
Facility Name: Portsmouth Decontamination and Decommissioning
Subject/Title: Spark/flash damage to floor and wall of Trailer 152-I due to an electrical short circuit
Date/Time Discovered: 04/09/2012 11:40 (ETZ)
Date/Time Categorized: 04/09/2012 15:41 (ETZ)
Report Type: Notification
Report Dates:

Notification	04/10/2012	15:45 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3
Reporting Criteria: 2E(2) - Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

Cause Codes:
ISM: 2) Analyze the Hazards
 3) Develop and Implement Hazard Controls

Subcontractor Involved: Yes
 Geiger Brothers and West End Electric

Occurrence Description: At approximately 1140 hours on April 9, 2012 while working on punch list items at the X-152 Phase 1 Trailer, the Project Superintendent discovered signs that an electrical short circuit had occurred involving wiring that was to provide power from Transformer T-2 to equipment in the IT Room of Area 2, Trailer 2-I. Upon investigation, heavy soot was discovered on the

floor at the base of the wall.

Cause Description:

Operating Conditions:

Normal Operations

Activity Category:

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

Immediate Action(s):

- Superintendent contacted the electrical subcontracting company and directed them to investigate the incident to determine the cause and to ensure that the system was left in a safe configuration.
- FBP Senior Management, the Plant Shift Superintendent, Safety, Performance Assurance and DOE Facility Rep were notified.
- The wiring was tagged-out using a single source LOTO to Breaker CB-2 in Panel PD-1.
- A Safety Pause was initiated by FBP for all work being performed by the contractor site-wide on any potentially live system. This pause will remain in effect until FBP is satisfied that corrective actions have been implemented to assure no reoccurrence.
- A Problem Report was initiated.
- A Critique was held.
- An Occurrence Report was initiated.

FM Evaluation:

A follow-up investigation will be performed to gather additional information for use in determining how and why this incident occurred.

DOE Facility Representative Input:

DOE Program Manager Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: Chris McDade
By When:

Division or Project:

X-152 Phase 1

Plant Area:

G5

System/Building/Equipment:

Trailer 2-I

Facility Function:

Environmental Restoration Operations

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

07D--Electrical Systems - Electrical Wiring
11G--Other - Subcontractor
12C--EH Categories - Electrical Safety
14L--Quality Assurance - No QA Deficiency

HQ Summary:

On April 9, 2012, a Project Superintendent discovered signs that an electrical short circuit had occurred involving wiring that was to provide power from Transformer T-2 to equipment in the IT Room of Area 2, Trailer 2-I, while working on punch list items at the X-152 Phase 1 Trailer.

The wiring was tagged-out and other appropriate actions were taken.

Similar OR Report Number:

Facility Manager:

Name	Woodrow B. (Jamie) Jameson
Phone	(740) 897-3860
Title	Fluor-B&W/Portsmouth Program Manager

Originator:

Name	BOOK, JACKIE
Phone	(740) 897-2569
Title	QUALITY PROGRAMS COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/09/2012	17:45 (ETZ)	Jamie Jameson	PORTSFBP
04/09/2012	17:46 (ETZ)	Dennis Carr	PORTSFBP
04/09/2012	18:15 (ETZ)	Joel Bradburne	DOE-PORT

Authorized Classifier(AC): Doug Fogel Date: 04/10/2012

4)Report Number:

[EM-ID--CWI-RWMC-2012-0001](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Idaho Cleanup Project

Facility Name:

Radioactive Waste Management Complex

Subject/Title:

Electrician Cuts Energized Wire at Accelerated Retrieval Project (ARP) VI (ARRA)

Date/Time Discovered:

04/18/2012 13:57 (MTZ)

Date/Time Categorized:

04/18/2012 15:26 (MTZ)

Report Type:

Notification

Report Dates:

Notification	04/23/2012	15:55 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category:

3

Reporting Criteria:

2E(2) - Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

Cause Codes:

ISM: 4) Perform Work Within Controls
Subcontractor Involved: No
Occurrence Description: On April 18, at approximately 1357, a D&D electrician separated a conduit which supplies power to a lighting ballast and cut energized wires. The electrician noticed a spark when he cut the wires and immediately stepped back and notified his supervisor. The affected area was roped off and notifications were made.

In discussions with the electrician, it was discovered that the conduit he separated was directly adjacent to a conduit he was stripping out at the time. He had just completed removing the conduit to the next lighting ballast to the west and "went to the next ballast in line." The electrician failed to recognize that this ballast was supplied by a different circuit which had not yet been locked out.

No shock or other injuries were sustained as a result of this event.

A Documented Apparent Cause Analysis (DACA) will be performed in accordance with STD-1113, Cause Analysis and Corrective Action Development.

Cause Description:
Operating Conditions: Does Not Apply
Activity Category: Facility Decontamination/Decommissioning
Immediate Action(s):
- D&D Electrician immediately performed a step back and notified Supervisor
- D&D Electrician Supervisor determined the D&D Electrician was not injured, secured roped and posted)area and made appropriate notifications
- Scheduled Fact Finding

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

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

Division or Project: RWMC Cleanup Project

Plant Area: Operations Area

System/Building/Equipment: Accelerated Retrieval Project (ARP) VI (WMF-1618)

Facility Function: Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
 01Q--Inadequate Conduct of Operations - Personnel error
 07D--Electrical Systems - Electrical Wiring
 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
 12C--EH Categories - Electrical Safety
 13H--Management Concerns - American Recovery and Reinvestment Act (ARRA)
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On April 18, 2012, a D&D electrician separated a conduit that supplies power to a lighting ballast and cut energized wires. The electrician noticed a spark when he cut the wires and immediately stepped back and notified his supervisor. The affected area was roped off and notifications were made. The conduit he had separated was adjacent to a conduit he was stripping out at the time. The electrician failed to recognize that this ballast was supplied by a different circuit which had not yet been locked out. No shock or other injuries were sustained as a result of this event.

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

Name	Schnelle, Jay
Phone	(208) 569-7544
Title	Nuclear Facility Manager

Originator:

Name	LOPEZ, SHERRY A
Phone	(208) 533-0576
Title	SR. CONSULTING TECHNICAL SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/18/2012	15:30 (MTZ)	Karns, R Steve	DOE-ID

Authorized Classifier(AC): Casteel, Michael Date: 04/23/2012

5)Report Number: [EM-RL--WCH-DND-2012-0006](#) After 2003 Redesign
Secretarial Office: Environmental Management
Lab/Site/Org: Hanford Site
Facility Name: Decontamination & Decommissioning
Subject/Title: Hazardous Energy Control Procedure Not Implemented When Required
Date/Time Discovered: 04/16/2012 15:30 (PTZ)
Date/Time Categorized: 04/16/2012 16:00 (PTZ)
Report Type: Notification/Final

Report Dates:

Notification	04/18/2012	19:17 (ETZ)
Initial Update	04/18/2012	19:17 (ETZ)
Latest Update	04/18/2012	19:17 (ETZ)
Final	04/18/2012	19:17 (ETZ)

Significance Category:

4

Reporting Criteria:

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

Cause Codes:

ISM:

- 2) Analyze the Hazards
- 4) Perform Work Within Controls

Subcontractor Involved:

No

Occurrence Description:

On April 16, 2012, Teamsters mobilized a manlift for the Pipefitters to perform maintenance on a portable 12,000 gallon temporary water tank located in the northwest corner of the 300 Area. The task involved repairing a sight glass on the elevated water tank, using a manlift to lift the Pipefitter to the top of the tank, which was approximately 20 ft off the ground. At approximately 1020 hrs, the WCH Electrical SME made notification to the Site Superintendent that it appeared the manlift was being utilized in a position that violates PAS-1-2.4 (Operation of Equipment Near Overhead Energized Electrical Power Lines). Upon receiving the notification, the Site Superintendent went to the work site and noted the work had been completed and the Pipefitter had lowered and exited the manlift.

Further investigation by project management determined the following: the manlift has the capability to lift the basket 60 ft vertically or 80 ft horizontally, the manlift was positioned at one end of the tank approximately 30 ft from 13.8 kV overhead power lines, and the work required the manlift to boom away from the power lines. The relevant electrical safety procedure requires specific steps to be taken when any work has the potential to come within 25 ft of the power lines. Therefore, although the truck and boom were 30 ft from the overhead power lines and boomed away from the lines during the work, the fact the manlift had the capability to encroach within the 25 ft boundary should have been recognized and the steps in the procedure implemented. There were no injuries or equipment damage as a result of this incident.

Noted in the follow-up evaluation, was that the work was accomplished using a spotter. Although not required, the Field Work Supervisor asked for a spotter due to proximity of the manlift to the water tank. During the evaluation, the spotter stated the manlift did not come near the 25 ft boundary of the power lines.

Cause Description: The project issued IF-2012-0300 to track corrective actions associated with this event.

Operating Conditions: Does Not Apply.

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

Immediate Action(s): Immediate Actions: Upon notification, project management initiated an evaluation of the work and applicable procedures. Notifications were made to line management and DOE.

FM Evaluation:

DOE Facility Representative Input:

DOE Program Manager Input:

Further Evaluation is Required: No

Division or Project: D-4

Plant Area: 300 Area

System/Building/Equipment: Manlift, Water Tank, Power lines

Facility Function: Environmental Restoration Operations

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance
01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)
08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues
08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
12C--EH Categories - Electrical Safety
14E--Quality Assurance - Work Process Deficiency

HQ Summary: On April 16, 2012, Teamsters mobilized a manlift for the Pipefitters to perform maintenance on a portable 12,000 gallon temporary water tank located in the northwest corner of the 300 Area. The task involved repairing a sight glass on the elevated water tank, using a manlift to lift the Pipefitter to the top of the tank, which was approximately 20 feet off the ground. The Electrical Subject Matter Expert made notification to the Site Superintendent that it appeared the manlift was being utilized in a position that violates PAS-1-2.4 (Operation of Equipment near Overhead Energized Electrical Power Lines). Upon receiving the notification, the Site Superintendent went to the work site and noted the work had been completed. Further investigation by management determined the following: the manlift was positioned at one end of the tank approximately 30 feet from 13.8 kV overhead power lines, and the work required the manlift to boom away from the power lines. The relevant electrical safety

procedure requires specific steps to be taken when any work has the potential to come within 25 feet of the power lines. Therefore, although the truck and boom were 30 feet from the overhead power lines and boomed away from the lines during the work, the fact the manlift had the capability to encroach within the 25 foot boundary should have been recognized and the steps in the procedure implemented. There were no injuries or equipment damage as a result of this incident.

Similar OR Report Number: 1. EM-RL--WCH-DND-2012-0003

Facility Manager:

Name	Gary Snow
Phone	(509) 372-9411
Title	D-4 Project Director

Originator:

Name	QUINN, TIM S
Phone	(509) 372-9439
Title	MANAGER, SAFEGUARDS AND SECURITY

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/16/2012	16:20 (PTZ)	Josh Allen	DOE-FR
04/16/2012	17:00 (PTZ)	Newell Crary	ONC

Authorized Classifier(AC):

6)Report Number:

[EM-RP--WRPS-TANKFARM-2012-0007](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Hanford Site

Facility Name:

Tank Farms

Subject/Title:

Access To Instrument/Electrical Enclosures May Not Be Adequately Controlled

Date/Time Discovered:

04/20/2012 19:27 (PTZ)

Date/Time Categorized:

04/20/2012 19:27 (PTZ)

Report Type:

Notification

Report Dates:

Notification	04/24/2012	13:51 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category:

3

Reporting Criteria:

10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or

line management to be of safety significance or of concern for that facility or other facilities or activities in the DOE complex.

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

Cause Codes:

ISM:

Subcontractor Involved: No

Occurrence Description: On April 20, 2012, as a result of the initial event investigation, Washington River Protection Solutions (WRPS) management determined that access to instrument/electrical enclosures may not be adequately controlled categorizing this condition as a Management Concern occurrence to notify other affected users of these electrical enclosures.

Background

On April 19, 2012, a Health Physics Technician (HPT), tasked with performing the weekly internal contamination survey of enclosure SY01C-WSTA-ENCL-101 in 241-SY Tank Farm, found the label indicating the enclosures contents were less than 50 volts missing from the back (south side) access doors while an electrical Danger label was on the front (north side) access doors of the enclosure. Due to possible improper electrical hazard labeling of the enclosure, the HPT declared a Stop Work requesting clarification of the labeling. A red arrow was placed in the Central Shift Manager Log restricting access this enclosure until the initial event investigation meeting scheduled for April 20, 2012, was conducted.

Upon further investigation of the condition, management has determined labeling the enclosure differently on its opposite sides is not appropriate. In order to allow operations and radiological control personnel to conduct their work inside the enclosure without being escorted by a qualified electrical worker, an electrical hazards evaluation allowed modifying the inside portion of the enclosure with a protective shield to cover electrical contacts greater than 50 volts. Therefore, it was believed accessing the back of the enclosure meets the requirements for energized parts that operate at less than 50 volts potential. In addition, the original determination of the protective shield by the qualified electrical worker and engineer was questionable based on comments from the Authority Having Jurisdiction, in that, the front side may not provide electrical contact protection from all directions even though the panel was not intended to be accessed from the front side without a qualified electrical worker escort.

Per the Electrical Safety procedure (TFC-ESHQ-S-STD-03), access to

enclosures, where there is a potential for electrical hazards, need to be controlled by an energized electrical work permit, or the following acceptable exceptions that require identification of known and potential hazards (shock and arc flash), identification of all required personnel protective equipment (PPE) and insulated tools, and identification of protective measures and equipment to be use when performing work. Specifically;

- * Working on energized parts that operate at LESS THAN 50 VOLTS potential
- * Testing and calibration of electrical equipment that can only be performed with the circuit energized under an existing approved procedure
- * Performing Safe Condition Checks and Safe-To-Work Checks for lockout/tagout operations
- * Performing troubleshooting that requires the equipment to be energized
- * Performing visual inspections
- * Installation of temporary protective measures such as protective shields/barriers, rubber insulating equipment, voltage rated plastic guard equipment, and physical or mechanical barriers. Use of these temporary protective measures shall be documented in the work record
- * An Electrical Hazard Evaluation (A-6005-432) shall be completed and documented to identify shock and arc flash hazards, determine appropriate safe work practices, protective clothing, and electrical PPE to be used before any person approaches exposed live parts within the limited approach boundary or the flash protection boundary.

Cause Description:

Operating Conditions:

Does not apply.

Activity Category:

Inspection/Monitoring

Immediate Action(s):

Access into enclosure SY01C-WSTA-ENCL-101 restricted via Red Arrow in the Central Shift Manager Logbook.

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 West

System/Building/Equipment:

Electrical/241-SY Farm/Enclosure SY01C-WSTA-ENCL-101

Facility Function:

Nuclear Waste Operations/Disposal

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)
 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
 12C--EH Categories - Electrical Safety
 14D--Quality Assurance - Documents and Records Deficiency
 14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On April 20, 2012, Washington River Protection Solutions management determined that access to instrument/electrical enclosures may not be adequately controlled following an investigation of an event in which a Health Physics Technician (HPT), tasked with performing weekly internal contamination surveys of an enclosure, found a label indicating the enclosure’s contents were less than 50 volts was missing from the back access doors while an electrical Danger label was on the front access doors of the enclosure. Because of possible improper electrical hazard labeling of the enclosure, the HPT stopped work and requested clarification of the labeling. Upon further investigation of the condition, management determined that labeling the enclosure differently on opposite sides is not appropriate. Access into the enclosure was restricted.

Similar OR Report Number:

Facility Manager:

Name	Ellis, Martin W
Phone	(509) 373-4696
Title	Manager, Base OPS Technical Support

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
04/20/2012	19:31 (PTZ)	Ringo, S. D.	WRPS
04/20/2012	19:33 (PTZ)	Domnoske-Rauch, L. A.	DOE-ORP
04/20/2012	19:35 (PTZ)	Crary, N. L. Jr.	MSA-ONC

Authorized Classifier(AC):

7)Report Number:

[EM-SR--PSC-SWPF-2012-0003](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org: Savannah River Site
Facility Name: Salt Waste Processing Facility
Subject/Title: Employee Received Minor Electrical Shock During Mortar Mixing
Date/Time Discovered: 04/17/2012 10:45 (ETZ)
Date/Time Categorized: 04/17/2012 13:10 (ETZ)
Report Type: Notification

Report Dates:

Notification	04/18/2012	15:50 (ETZ)
Initial Update		
Latest Update		
Final		

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

Cause Codes:

ISM: 4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On 04/17/2012 at approximately 1045 hours an employee received a minor shock while using a Milwaukee Super Hole Shooters drill with a mixing paddles to mix mortar. He was holding the drill with both hands and the shock was felt in both hands. As a safety precaution, the employee was evaluated by medical personnel. This evaluation determined the employee was not injured and he returned to work with no restrictions.

The employee was wearing the following PPE as required by the Job Hazard Analysis for mixing mortar - a tyvek suit, over the shoes rubber boots, rubber gloves, hard hat, face shield and safety glasses.

Electricians inspected the drill and GFCI breaker and found them to be working properly. The initial condition of the GFCI breaker was identified as tripped. The Electricians also disassembled and inspected the extension cord and identified a fault within the cord. The cord was removed from service.

Cause Description:

Operating Conditions: Construction

Activity Category: Construction

Immediate Action(s):

1. Worker Notified Management
2. Power Cord was inspected and found to be defective
3. Power Cord was removed from service

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: SWPF

Plant Area: J-Area

System/Building/Equipment: Transformer Pad 252J

Facility Function: Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 07D--Electrical Systems - Electrical Wiring
 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock
 12C--EH Categories - Electrical Safety
 14L--Quality Assurance - No QA Deficiency

HQ Summary: On April 17, 2012, an employee received a minor shock while using a Milwaukee Super Hole Shooters drill with mixing paddles to mix mortar. He was holding the drill with both hands and the shock was felt in both hands. As a safety precaution, the employee was evaluated by medical personnel. This evaluation determined the employee was not injured and he returned to work with no restrictions. Electricians inspected the drill and Ground Fault Circuit interrupter (GFCI) breaker and found them to be working properly. The initial condition of the GFCI breaker was identified as tripped. The Electricians also disassembled and inspected the extension cord and identified a fault within the cord. The cord was removed from service.

Similar OR Report Number:

Facility Manager:

Name	SWANSON, BRAD
Phone	(803) 643-2279
Title	PLANT MANAGER

Originator:

Name	SWANSON, BRAD
Phone	(803) 643-2279
Title	PLANT MANAGER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/17/2012	11:58 (ETZ)	Scott McMullin	DOE FR

Authorized Classifier(AC):**8)Report Number:** [EM-SR--SRNS-CPWM-2012-0006](#) After 2003 Redesign**Secretarial Office:** Environmental Management**Lab/Site/Org:** Savannah River Site**Facility Name:** Closure Projects and Works Management**Subject/Title:** Incorrectly Installed Single Point Lockout Tagout (U)**Date/Time Discovered:** 04/26/2012 13:45 (ETZ)**Date/Time Categorized:** 04/26/2012 14:47 (ETZ)**Report Type:** Notification/Final**Report Dates:**

Notification	04/30/2012	16:30 (ETZ)
Initial Update	04/30/2012	16:30 (ETZ)
Latest Update	04/30/2012	16:30 (ETZ)
Final	04/30/2012	16:30 (ETZ)

Significance Category: 4**Reporting Criteria:** 2E(3) - Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).**Cause Codes:** A3B2C04 - Human Performance Less Than Adequate (LTA); Rule Based Error; Previous success in use of rule reinforces continued use of rule -->couplet - NA**ISM:** 2) Analyze the Hazards**Subcontractor Involved:** Yes
S&R Electric**Occurrence Description:** On 4/24/2012, in SWMF, subcontract electrical workers were installing electrical service to a Rigging Storage Building (643-46E). A Single Point Lockout/Tagout (SPLT) was to be used to isolate electrically a portion of this work. A SPLT was issued by the Shift Operations Manager (SOM) to two electrical subcontractors to perform this work. On 4/26/12, the SW Safety Manager was observing the work area and found the disconnect was de-energized, and had 2 SPLT tags installed with no locks/hasps. The work was immediately stopped and the SOM and Subcontract Technical Representative (STR) were notified.**Background:**

The subcontract electrical workers involved were HEC qualified per 8Q 32 requirements. The workers assumed that, in this case, only Do Not Operate (DNO) tags were required on the open disconnect. The workers thought that the locks would not fit into the switch position locking point and did not use a hasp. A safe energy state check was performed and absence of voltage verified. Note in the commercial industry that locks are not always required. The workers stated they perform a lot of work which require no

locks with established secondary barriers. In this case, a lock and tag is required.

A SPLT was established earlier on 4/24, on a different component, with the same subcontract workers. A facility work control person positioned the component as required and observed the workers install their DNO tags and locks. This is the requirement per 8Q32, Attachment 8.3- third note, "For a SPLT installed to accommodate subcontractor work, facility operations/maintenance /custodian personnel as authorized by the SOM, shall position the component and then observe installation of the SPLT lock/tag by subcontract personnel." For the SPLT that did not meet requirements, the facility worker verified the correct component position, but did not stay to observe the contractors install their locks and tags.

Note: The SRS Electrical Safety Subject Matter Expert has calculated the electrical severity of this event: Electrical Severity (ES) = (Electrical Hazard Factor) * (1 + Environment Factor + Shock Proximity Factor + Arc Flash Proximity Factor + Thermal Proximity Factor) * (Injury Factor)

$$ES = 0*(1 + 0 + 0 + 0 + 0)*1 = 0$$

Note: See 2012-CTS-004336

Cause Description:

Subcontract personnel did not fully understand the requirements to implement a SPLT.

Facility personnel did not fulfill their responsibility to ensure the subcontractor SPLT was implemented correctly.

Operating Conditions:

Normal Operations

Activity Category:

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

Immediate Action(s):

The work was immediately stopped and SOM and STR were notified.

Facility ensured locks and tags were established to comply with Hazardous Energy Control (HEC) requirements.

FM Evaluation:

The facility was placed in a safe condition by installing the locks and tags.

Fact Finding was held on 4/26/2012 to address actions to prevent recurrence.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

No

Required:

Division or Project: SOLID WASTE MANAGEMENT

Plant Area: E-Area

System/Building/Equipment: 643-46E, Rigging Storage Building

Facility Function: Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned: Ensure Facility personnel question subcontract workers on the required lockout sequence and requirements. Although knowledge of our HEC program is expected, ask the questions. Ensure SPLT responsibilities and requirements for subcontractors and facility personnel are understood.

HQ Keywords:

- 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
- 01R--Inadequate Conduct of Operations - Management issues
- 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 April 24, 2012, at the Solid Waste Management Facility (SWMF), subcontract electrical workers installed a Single Point Lockout/Tagout (SPLT) with no locks/hasps. The subcontractors were installing electrical service to a Rigging Storage Building (643-46E). A SPLT was to be used to electrically isolate a portion of this work and was issued by the Shift Operations Manager (SOM) to two electrical subcontractors to perform this work. On April 26, the Solid Waste Safety Manager was observing the work area and found the disconnect was de-energized and had two SPLT tags installed with no locks/hasps. The work was immediately stopped and the SOM and Subcontract Technical Representative were notified. Subcontract personnel did not fully understand the requirements to implement a SPLT, and Facility personnel did not fulfill their responsibility to ensure the subcontractor SPLT was implemented correctly. A fact finding meeting was held.

Similar OR Report Number:

Facility Manager:

Name	KOKOVICH, MARK
Phone	(803) 208-8263
Title	SWMF FACILITY MANAGER

Originator:

Name	STILL, DEBBIE L
Phone	(803) 208-2886
Title	SOLID WASTE MANAGEMENT ADMIN. & ORGA

HQ OC Notification:

Date	Time	Person Notified	Organization
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NA	NA	NA	NA
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Other Notifications:

Date	Time	Person Notified	Organization
04/26/2012	15:00 (ETZ)	T. Cochran, SW FR	DOE
04/26/2012	15:00 (ETZ)	V. Mooneyhan, SWM Ops. Mgr	SWM
04/26/2012	15:00 (ETZ)	D. Mills, SERB Rep.	SERB
04/26/2012	15:00 (ETZ)	M. Kokovich, SW FM	SWM
04/26/2012	15:05 (ETZ)	L. Fox, SWM Dep. Dir.	SWM
04/26/2012	15:12 (ETZ)	M. Holland, SRSOC	SRSOC
04/26/2012	15:22 (ETZ)	D. Burnfield, DNFSB	DNFSB

Authorized Classifier(AC): Steve Mentrup Date: 04/30/2012

9)Report Number: [NA--PS-BWP-PANTEX-2012-0040](#) **After 2003 Redesign**

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Pantex Plant

Facility Name: Pantex Plant

Subject/Title: Automatic Transfer Switch (ATS) 23 Electrical Anomaly

Date/Time Discovered: 04/26/2012 16:45 (CTZ)

Date/Time Categorized: 04/27/2012 14:06 (CTZ)

Report Type: Notification

Report Dates:

Notification	04/30/2012	17:15 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 2

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

Cause Codes:

ISM: 4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On Thursday, April 26, 2012, between 15:00 and 15:40, three electricians individually received electrical shocks while working on Automatic Transfer Switch (ATS) 23 which had been locked out and an absence of energy check performed. The source of the electrical energy was subsequently determined to be a back feed from a 120 volt circuit from the 15-24 pump house through an interlock circuit with the 15-25 pump house. The Electrical Severity Index was determined to be 330 (medium).

Categorization of the event was delayed due to imprecise communication among managers.

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

Cause Description:

Operating Conditions:

Electrical Shut Down

Activity Category:

Maintenance

Immediate Action(s):

Electrical Section Manager conducted a shop stand down to discuss the event.

Electrical Section Manager began an investigation of the unexpected power and locked out interlock circuits.

Plant Maintenance Department Manager conducted a fact finding meeting.

Plant Maintenance Department Manager suspended the Zone 11 outage.

Plant Maintenance Department Manager removed qualifications from the supervisor and 3 electricians involved in the event.

The event was categorized as 2E(S) SC2, Any unexpected or unintended personal contact with an electrical hazardous energy source.

On 04/30/12 a critique was conducted and the categorization remained the same.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

No

Division or Project:

Maintenance

Plant Area:

Zone 11

System/Building/Equipment:

Zone 11

Facility Function:

Balance-of-Plant - Site/outside utilities

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)

01M--Inadequate Conduct of Operations - Inadequate Job Planning

(Electrical)
 01P--Inadequate Conduct of Operations - Inadequate Oral Communication
 01Q--Inadequate Conduct of Operations - Personnel error
 01R--Inadequate Conduct of Operations - Management issues
 01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation
 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock
 12C--EH Categories - Electrical Safety
 13A--Management Concerns - HQ Significant (High-lighted for Management attention)
 13E--Management Concerns - Facility Call Sheet
 14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On April 26, 2012, three electricians individually received electrical shocks while working on Automatic Transfer Switch 23 which had been locked out and an absence of energy check performed. The source of the electrical energy was subsequently determined to be a back feed from a 120 volt circuit from the 15-24 pump house through an interlock circuit with the 15-25 pump house. The Electrical Section Manager began an investigation of the unexpected power and locked out interlock circuits. The Plant Maintenance Department Manager conducted a fact finding meeting. The Plant Maintenance Department Manager removed qualifications from the supervisor and three electricians involved in the event. There were no injuries to personnel.

Similar OR Report Number:

Facility Manager:

Name	Lewis Monroe, III
Phone	(806) 477-7770
Title	Plant Maintenance Department Manager

Originator:

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

HQ OC Notification:

Date	Time	Person Notified	Organization
04/27/2012	08:30 (CTZ)	Dianne Ely	B&W

Other Notifications:

Date	Time	Person Notified	Organization
04/27/2012	08:30 (CTZ)	Noel Williams	NNSA

Authorized Classifier(AC): Stan Stambaugh Date: 04/30/2012

10)Report Number:

[NA--SS-SNL-NMFAC-2012-0002](#) After 2003 Redesign

Secretarial Office:

National Nuclear Security Administration

Lab/Site/Org:

Sandia National Laboratories - SS

Facility Name:

SNL NM Site-wide F & M

Subject/Title:

A Maintenance Mechanical Trades Employee Failed to Follow the

Lockout/Tagout Policy at Building 836 While Removing a Refrigerant Monitor

Date/Time Discovered: 04/19/2012 08:00 (MTZ)

Date/Time Categorized: 04/26/2012 08:00 (MTZ)

Report Type: Notification/Final

Report Dates:

Notification	04/30/2012	16:59 (ETZ)
Initial Update	04/30/2012	16:59 (ETZ)
Latest Update	04/30/2012	16:59 (ETZ)
Final	04/30/2012	16:59 (ETZ)

Significance Category: 4

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

Cause Codes:

ISM: 2) Analyze the Hazards
4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On Thursday, April 19, 2012, at approximately 1900, a maintenance mechanical employee removed a 120 volt refrigerant monitor without following the lockout/tagout policy in Building 836. The employee was removing refrigerant for the unit and the day before had requested that a work order be started to remove and save the refrigerant monitor. On April 19, the employee turned the breaker off and conducted a zero voltage test on the labeled hazard category 0 circuit. This was done utilizing the proper personal protective equipment (PPE). The employee became distracted and did not properly lock and tag the circuit prior to removing the refrigerant monitor. The employee conducted the work without the proper approval and documentation.

The circuit was not administratively locked out and was noticed by a subcontractor and reported and an investigation was initiated.

A second co-worker was removing the refrigerant in the area at the time of the event.

The event has a severity score of 550 as follows: Electrical Hazard Factor: 50 (50-230 VAC downstream of a 150 KVA transformer); Environment Factor : 0 (Dry); Shock Proximity Factor: 10 (inside Prohibited Approach Boundary); Arc Flash Proximity Hazard: 0 (Outside arc flash boundary); Thermal proximity factor: 0 (NA); No PPE Mitigations; Injury Factor: 1 (no injury).

The work was conducted on second shift on April 19, 2012. However, the

event was not classified until 0800 on April 26, 2012, when a Safety Engineer completed the investigation and identified the noncompliance.

Cause Description: Critique/Fact Finding Performed: 4/26/2012

Operating Conditions: Normal

Activity Category: Maintenance

Immediate Action(s): The work area was placed in a safe condition. Notifications were conducted. Investigation was initiated. Employee was stood down and retraining started.

FM Evaluation: EOC#25076

DOE Facility Representative Input:

DOE Program Manager Input:

Further Evaluation is Required: No

Division or Project: 4840/Mechanical refrigerant system removal

Plant Area: Tech Area I

System/Building/Equipment: Refrigerant monitor/836/Basement

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

Corrective Action:

Lessons(s) Learned:

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

HQ Summary: On April 19, 2012, a maintenance mechanical employee removed a 120-volt refrigerant monitor without following the lockout/tagout policy in Building 836. The employee was removing refrigerant for the unit and the day before had requested that a work order be started to remove and save the refrigerant monitor. The employee turned the breaker off and conducted a zero voltage test on the labeled hazard category 0 circuit utilizing the proper personal protective equipment. The employee became distracted and did not properly lock and tag the circuit prior to removing the refrigerant monitor. The employee conducted the work without the proper approval and documentation. The circuit was not administratively locked out and was noticed by a subcontractor and reported. An investigation was initiated, the work area was placed in a safe condition and notifications were made.

Similar OR Report Number:

Facility Manager:

Name	Greg Kirsch
Phone	(505) 845-9497
Title	FESH Lead

Originator:

Name	GOETSCH, ROBERT S.
Phone	(505) 284-4647
Title	SENIOR TECHNICAL WRITER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/26/2012	08:00 (MTZ)	Lynnwood Dukes	4840
04/26/2012	08:00 (MTZ)	Stan Harrison	4870
04/26/2012	08:00 (MTZ)	Ed Williams	4844
04/26/2012	08:30 (MTZ)	Art Ratzel	4800
04/26/2012	08:30 (MTZ)	Debbie Garcia-Sanchez	DOE/SSO

Authorized Classifier(AC): John Norwalk Date: 04/26/2012

11)Report Number: [NA--YSO-BWXT-Y12SITE-2012-0019](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Y12 National Security Complex

Facility Name: Y-12 Site

Subject/Title: Discovered Energized Electric Conductors

Date/Time Discovered: 04/25/2012 12:05 (ETZ)

Date/Time Categorized: 04/25/2012 12:53 (ETZ)

Report Type: Update

Report Dates:

Notification	04/30/2012	13:11 (ETZ)
Initial Update	05/02/2012	14:20 (ETZ)
Latest Update	05/02/2012	14:20 (ETZ)
Final		

Significance Category: 2

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

10(3) - A near miss to an otherwise ORPS reportable event, where something physically happened that was unexpected or unintended, or where no or only one barrier prevented an event from having a reportable

consequence.

The significance category assigned to the near miss must be based on an evaluation of the potential risks and extent of personnel exposure to the hazard. (1 of 3 criteria - This is a SC 2 occurrence)

Cause Codes:

ISM:

2) Analyze the Hazards

Subcontractor Involved:

Yes

PAS-Coy

Occurrence Description:

On April 25, 2012 a Subcontractor was preparing a small building (pump house) for demolition. One of the pre-demolition activities is to cut electrical conduit stub-ups flush with the floor and seal openings in the floor. Prior to any pre-demolition activities the building electrical feeds were air gapped of all electrical power and absence of voltage verified. A laborer was cutting an electrical conduit stub-up flush with the floor using a reciprocating saw when an electrical spark was observed. The conduit stub up contained an old energized 130V DC control conductor. No injuries occurred and no other facilities or equipment was affected by this event. The subcontract employee was taken to an offsite medical facility for assessment and returned to the site later with no restrictions.

Cause Description:

Operating Conditions:

Demolition

Activity Category:

Facility Decontamination/Decommissioning

Immediate Action(s):

Subcontractor stopped work. Laborer performing the cutting was taken Off-Site to subcontractor's medical provider for medical examination and was released with no restrictions.

- Electrical AHJ, Power Ops and Engineering were summoned to the site to determine source of power.

- Barrier was erected around the incident area to preserve the scene.

Photographs were taken and tools stowed.

- Power operations disconnected the 130 V DC at the source in Building 9201-2.

FM Evaluation:

Resumption of the activities is anticipated to be determined after the Critique

Update 05/02/2012 Issue 30775407

During the course of the Critique for this occurrence it was revealed that at some point during the work activities the energized conductors located in a junction box above the Conduit stub-up had been cut, and that the conductors and junction box above the stub-up had been removed. Since the conductors that were cut were the same conductors that triggered this event it's apparent that they were energized at the time the cut was made. In light of this new information this occurrence has been re-categorized

from a 2E-2 Cat 3 to a 10-3 Near Miss to a 2E-1 Cat 2.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: Yes.
Before Further Operation? Yes
By Whom: William Hevrdeys
By When: 06/07/2012

Division or Project: T&P Projects, Infrastructure Reduction

Plant Area: PPA

System/Building/Equipment: 9404-4

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

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 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 April 25, 2012, during demolition activities a subcontract employee was cutting an electrical conduit stub-up flush with the floor using a reciprocating saw when an electrical spark was observed. The conduit stub up contained an old energized 130V DC control conductor. A small building (pump house) was being prepared for demolition; one of the pre-demolition activities is to cut electrical conduit stub-ups flush with the floor and seal openings in the floor. Prior to any pre-demolition activities the building electrical feeds were air gapped of all electrical power and absence of voltage verified. No injuries occurred and no other facilities or equipment were affected. The subcontract employee was taken to an offsite medical facility for assessment and returned to the site later with no restrictions. The electrical authority having jurisdiction, Power Ops and Engineering were summoned to the site to determine source of power. A barrier was erected around the incident area to preserve the scene, and an investigation was initiated.

Similar OR Report Number:

Facility Manager:

Name	William Hevrdeys
Phone	(865) 576-4752
Title	Construction Manager

Originator:

Name	JONES, CARLA M
Phone	(865) 576-3949

Title	
-------	--

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/25/2012	12:13 (ETZ)	Shayne Johnson	B&W STR
04/25/2012	12:28 (ETZ)	Richard Patrick	B&W STR
04/25/2012	12:32 (ETZ)	Paul Chapman	B&W AHJ
04/25/2012	12:32 (ETZ)	PSS	B&W Y-12
04/25/2012	12:35 (ETZ)	William Hevredeys	Con Mgr.
04/25/2012	12:40 (ETZ)	George McClain	B&W CMgr
04/25/2012	12:45 (ETZ)	Mike Disney	Power Op
04/25/2012	12:45 (ETZ)	Tom Morris	Projects
04/25/2012	12:53 (ETZ)	Duty FR	NNSA

Authorized Classifier(AC): R H. Wantland Date: 05/02/2012

12)Report Number: [SC--BHSO-BNL-BNL-2012-0013](#) After 2003 Redesign
Secretarial Office: Science
Lab/Site/Org: Brookhaven National Laboratory
Facility Name: Brookhaven National Laboratory (BOP)
Subject/Title: Electrical Safety Concern Identified At BNL Earth Week Environmental Vendor Fair Display
Date/Time Discovered: 04/18/2012 11:45 (ETZ)
Date/Time Categorized: 04/18/2012 12:30 (ETZ)
Report Type: Notification
Report Dates:

Notification	04/20/2012	16:34 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3
Reporting Criteria: 2E(2) - Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

Cause Codes:
ISM:
Subcontractor Involved: No

Occurrence Description: At Brookhaven National Laboratory (BNL), on April 18, 2012, at approximately 11:45, a safety engineer from the Safety and Health Services Division identified an electrical hazard at a visiting vendor's display table located inside Berkner Hall. Specifically, live electrical power circuits (120VAC) were found to be exposed to possible contact. Contact was not made with the electrical circuits and nobody was injured by the hazard.

Cause Description:

Operating Conditions: Normal Operating Conditions

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

Immediate Action(s): The circuit was de-energized.

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: Environmental Protection Division

Plant Area: Berkner Hall

System/Building/Equipment: Berkner Hall

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

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
11L--Other - Supplier
12C--EH Categories - Electrical Safety
13E--Management Concerns - Facility Call Sheet
14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency

HQ Summary: On April 18, 2012, at the Brookhaven National Laboratory, a safety engineer from the Safety and Health Services Division identified energized electrical power circuits (120VAC) that were exposed to possible contact at a visiting vendor's display table located inside Berkner Hall. Contact was not made with the electrical circuits and no one was injured by the hazard. The circuit was de-energized.

Similar OR Report Number:

Facility Manager:

Name	REMIEN, JASON
Phone	(631) 344-3477
Title	REGULATORY COMPLIANCE GROUP LEADER

Originator:

Name	SIERRA, EDWARD A
Phone	(631) 344-4080
Title	ORPS COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/18/2012	11:45 (ETZ)	R. Biscardi	BNL
04/18/2012	12:00 (ETZ)	E. Sierra	BNL
04/18/2012	12:15 (ETZ)	J. Remien	BNL
04/18/2012	13:30 (ETZ)	A. Janczewski	DOE/BHSO

Authorized Classifier(AC):

13)Report Number:

[SC--BHSO-BNL-BNL-2012-0014](#) After 2003 Redesign

Secretarial Office:

Science

Lab/Site/Org:

Brookhaven National Laboratory

Facility Name:

Brookhaven National Laboratory (BOP)

Subject/Title:

Employee Resets a Tripped Circuit Breaker without Required Training or PPE

Date/Time Discovered:

04/20/2012 12:10 (ETZ)

Date/Time Categorized:

04/20/2012 22:00 (ETZ)

Report Type:

Notification

Report Dates:

Notification	04/24/2012	15:46 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category:

3

Reporting Criteria:

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

10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern for that facility or other facilities or activities in the DOE complex.

The significance category assigned to the management concern should be

based on an evaluation of the potential risks and impact on safe operations.
(1 of 4 criteria - This is a SC 3 occurrence)

Cause Codes:

ISM:

Subcontractor Involved: No

Occurrence Description: At Brookhaven National Laboratory (BNL) an employee in the Main Gate Trailer (TR978) reset a tripped electrical circuit breaker without required training or PPE.

Cause Description:

Operating Conditions: Normal Operations

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

Immediate Action(s): Supervision was notified. The employee was instructed not to operate breakers.

FM Evaluation: On April 24, at 1350, based on an evaluation of the potential risks and impact on safe operations, the categorization of this event was raised from a Significance Category 4 to Significance Category 3 event.

DOE Facility Representative

Input:

DOE Program Manager

Input:

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

Division or Project: Facility Operations Office

Plant Area: Main Gate Trailer

System/Building/Equipment: Main Gate Trailer - TR978

Facility Function: Balance-of-Plant - Offices

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
01F--Inadequate Conduct of Operations - Training Deficiency
01Q--Inadequate Conduct of Operations - Personnel error
12C--EH Categories - Electrical Safety
14B--Quality Assurance - Training and Qualification Deficiency
14E--Quality Assurance - Work Process Deficiency

HQ Summary: On April 20, 2012, an employee in the Main Gate Trailer (TR978) reset a tripped electrical circuit breaker without having the required training or PPE. Supervision was notified and the employee was instructed not to

operate circuit breakers.

Similar OR Report Number:

Facility Manager:

Name	ROZA, THOMAS W
Phone	(631) 344-3085
Title	FACILITY COMPLEX MANAGER - SOUTH

Originator:

Name	SIERRA, EDWARD A
Phone	(631) 344-4080
Title	ORPS COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/20/2012	22:00 (ETZ)	E. Sierra	BNL
04/20/2012	22:00 (ETZ)	K. Sullivan	BNL
04/20/2012	22:20 (ETZ)	A. Janczewski	BHSO/DOE

Authorized Classifier(AC):

14)Report Number:

[SC--TJSO-JSA-TJNAF-2012-0005](#) After 2003 Redesign

Secretarial Office:

Science

Lab/Site/Org:

Thomas Jefferson National Accelerator Site

Facility Name:

Thomas Jefferson Nat'l Accelerator

Subject/Title:

TEDF-12-0410 Utility(Electrical) Line Strike

Date/Time Discovered:

04/10/2012 10:00 (ETZ)

Date/Time Categorized:

04/10/2012 11:00 (ETZ)

Report Type:

Notification

Report Dates:

Notification	04/12/2012	11:47 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category:

3

Reporting Criteria:

2E(2) - Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

Cause Codes:

ISM:

Subcontractor Involved: Yes
Mortenson

Occurrence Description: During excavation activities an electrical line (480V) was damaged by a backhoe bucket. The damage to the electrical line caused the loss of electrical power to the blockhouse and trailers which are occupied by the Radiation Control group. Utility location marks indicated underground electrical power in this area; however, those markings were consistent with a concrete encased duct bank located almost directly below the location where this direct electrical line was encountered. Considerable planning, and review went into this excavation and the electrical line was not on any facility drawings.

Cause Description:

Operating Conditions: Normal Outside Construction Site

Activity Category: Construction

Immediate Action(s):

1. Construction work in that area was immediately stopped;
2. Workers exited the area;
3. Appropriately trained worker secured the power supply by applying a lockout tagout (LOTO) and verified its effectiveness, by the contractor;
4. Excavation work at the TEDF Project will only resume once an immediate corrective action plan is approved by the Chief Operating Officer;
5. An initial fact-finding meeting was held in the field to assess conditions and take statement from the work crew.

FM Evaluation:

DOE Facility Representative Input:

DOE Program Manager Input:

Further Evaluation is Required: No

Division or Project: TEDF- Technical Engineering Development Facility

Plant Area: Test Lab Addition

System/Building/Equipment: Test Lab Addition Project- Utility(Electrical) line strike

Facility Function: Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control
07C--Electrical Systems - Power Outage
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 April 10, 2012, a 480-volt electrical line was damaged by a backhoe bucket during excavation activities at the TEDF project. The damage to the electrical line caused the loss of electrical power to the blockhouse and trailers which are occupied by the Radiation Control group. Utility location marks indicated underground electrical power in this area; however, those markings were consistent with a concrete encased duct bank located almost directly below the location where this direct electrical line was encountered. Considerable planning, and review went into this excavation and the electrical line was not on any facility drawings. Appropriate immediate actions were taken and a fact-finding meeting was held.

Similar OR Report Number:

Facility Manager:

Name	JOHNSON, CHRISTINA J.
Phone	(757) 269-7611
Title	REPORTING OFFICER

Originator:

Name	JOHNSON, CHRISTINA J.
Phone	(757) 269-7611
Title	REPORTING OFFICER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/10/2012	10:15 (ETZ)	Steve Neilson	TJSO

Authorized Classifier(AC): Christina Johnson Date: 04/10/2012

15)Report Number: [SC-ORO--ORNL-X10CENTRAL-2012-0004](#) After 2003 Redesign

Secretarial Office: Science

Lab/Site/Org: Oak Ridge National Laboratory

Facility Name: ORNL Central Complex

Subject/Title: Electrical Conduit Damaged During Excavation

Date/Time Discovered: 04/25/2012 09:00 (ETZ)

Date/Time Categorized: 04/25/2012 17:00 (ETZ)

Report Type: Notification

Report Dates:

Notification	04/27/2012	08:17 (ETZ)
Initial Update		
Latest Update		

Final		
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Significance Category:

3

Reporting Criteria:

10(3) - A near miss to an otherwise ORPS reportable event, where something physically happened that was unexpected or unintended, or where no or only one barrier prevented an event from having a reportable consequence.

The significance category assigned to the near miss must be based on an evaluation of the potential risks and extent of personnel exposure to the hazard. (1 of 3 criteria - This is a SC 3 occurrence)

Cause Codes:

ISM:

Subcontractor Involved:

No

Occurrence Description:

On April 25, 2012, ORNL personnel were excavating a trench to install electrical services north of building 4007. Personnel conducted a pre-job briefing and were following appropriate excavation procedures, including field markings of the existing utilities, the use of a field spotter, and hand digging. During excavation, the grounded excavator contacted and damaged a 1-inch PVC conduit containing a 120 volt electrical cable. The insulated line within the conduit was not damaged and there were no injuries associated with the event.

Buried electrical utilities in a covered duct bank had been previously identified on physical drawings as being approximately 2-feet underground. However, the damaged conduit was positioned above the existing utilities (at approx. 8-inches depth) and was not included on the drawings. Utility locating equipment did not distinguish the conduit as being located above the existing utilities duct bank.

The excavation activity was suspended and ORNL supervision notified. While the energized cable was not damaged, further management review of the event resulted in a decision to categorize the event as a Management Concern 10(3) Near Miss, Safety Significance 3 occurrence.

There were no personnel injuries, environmental, health or safety consequences or impacts as a result of this occurrence.

Cause Description:

Operating Conditions:

Normal

Activity Category:

Construction

Immediate Action(s):

Subsequent to the event, the area was secured and put in a safe condition.

On April 25, 2012, at 1700 hours, after further management review, a Management Concern 10(3), SC-3 Near Miss was categorized with the Laboratory Shift Superintendent.

On April 26, 2012, a critique of the event was conducted.

FM Evaluation:

Line management is evaluating the circumstances around this event and will implement actions as appropriate, and develop any necessary lessons learned.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Yes.

Required:

Before Further Operation? No

By Whom: Jon Forstrom

By When: 06/11/2012

Division or Project:

Logistical Services Division

Plant Area:

Near Building 4007

System/Building/Equipment:

Construction Near 4007

Facility Function:

Balance-of-Plant - Site/outside utilities

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

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

12K--EH Categories - Near Miss (Could have been a serious injury or fatality)

14D--Quality Assurance - Documents and Records Deficiency

14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On April 25, 2012, a grounded excavator contacted and damaged a 1-inch PVC conduit containing a 120 volt electrical cable when Oak Ridge National Laboratory (ORNL) personnel excavated a trench to install electrical services north of Building 4007. The insulated line within the conduit was not damaged and there were no injuries associated with the event. Personnel conducted a pre-job briefing and followed appropriate excavation procedures, including field markings of the existing utilities, the use of a field spotter and hand digging. The damaged conduit was 8 inches deep and was not on the drawings. The conduit was above an existing electrical utility duct bank shown to be approximately 2 ft underground on drawings. Utility locating equipment did not distinguish between the conduit and the electrical utility duct bank. Excavation activity was suspended and ORNL supervision was notified.

Similar OR Report Number:

Facility Manager:

Name	Jon Forstrom
------	--------------

Phone	(865) 576-5640
Title	Logistical Services Division Manager

Originator:

Name	BAXTER, CHARLES PHIL
Phone	(865) 576-8361
Title	SSR PROGRAM AND EVENT REPORTING MGR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
04/25/2012	17:00 (ETZ)	Lab Shift Superintendent	ORNL LSS
04/25/2012	18:07 (ETZ)	Johnny Moore	DOE ORNL
04/25/2012	18:07 (ETZ)	Michele Branton	DOE ORNL

Authorized Classifier(AC):

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