



Office of Health, Safety and Security

Monthly Analysis of Electrical Safety Occurrences



July 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 9 in June to 16 in July, while the number of electrical shocks increased from 1 to 6. Following a month in which there were no electrical intrusion occurrences, there were two excavation events and two cutting events reported in July. Also, the number of lockout/tagout occurrences increased by one to five July. Hazards identification was impacted by the increase in the number of electrical shocks, therefore resulting in a larger number of occurrences in which the hazard found the worker.

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 June occurrence reports is provided in Attachment 2.

Electrical Shock

There were six electrical shocks reported in the month of July, which is an increase from the single shock reported in June. Two of the shocks occurred during the same event. The majority of these shock events involved equipment deficiencies rather than bad work practices. These included a loose ground wire, a defective GFCI, a missing ground wire, and an improper grounding connection. These occurrences are summarized below.

1. Two workers experienced a tingling sensation, which indicated a possible mild shock, while turning off an outdoor misting fan (Model: Cooledraft Extreme Ventilation). The workers were operating the metal On/Off switch on the mister when they experienced the tingling sensation. The misting fan was plugged into an outdoor outlet and the mister is equipped

with a Ground Fault Circuit Interrupter (GFCI) built into the cord. The GFCI was tested before use without issue. The workers were sent to First Aid for evaluation. The misting fan was disconnected, cautioned taped, and tagged out of service. Equipment investigations were initiated and similar equipment was removed from service pending the outcome of the investigation. There is a concern that the equipment might be suspect/counterfeit.

2. While a vendor was working on a Hycomp Compressor, he thought he felt a tingling sensation as he brushed up against some wires. The vendor checked for voltage and found none. The work was performed under a single point Lockout/Tagout. There were two power sources within the work scope boundary that could have intermittently energized. During troubleshooting, a review of historical information confirmed that those sources were intermittently powered. There were no injuries as a result of this incident and all single point Lockout/Tagouts and vendor work were placed on hold for facility manager approval.
3. A worker received an electric shock while operating a peristaltic pump that was powered by 110 volts. The employee was using the pump to fill an environmental shaker reservoir with deionized water and was shocked when the employee touched the pump, which was plugged into a GFCI protected outlet. The employee was evaluated by Medical Care Services and no injury was identified. An electrician evaluated the pump and found that the pump ground was defective with a loose wire at the plug. The GFCI was tested and was found not to be working. The defective GFCI was replaced and tested.
4. A contract journeyman electrician received a shock while conducting an Arc Flash Study on a panel. The panel was made up of a “door in door configuration” and was in an electrically safe condition. The electrician wore standard construction PPE (hard hat, safety glasses and safety shoes) at the time of the event. The electrician had touched their right index and pinky finger to the inner door and felt what was perceived as an electrical shock, which occurred to the same hand. The electrician was taken to medical and released to full duty. A Square D, Transient Voltage Surge Suppressor, which is part of the circuit configuration, was improperly installed (missing ground wire) resulting in the cover being energized. The circuit was administratively locked and tagged out.
5. A staff member felt a minor tingling while connecting a sample heating apparatus. The heater element was assembled by the user and consisted of a heated copper block designed to hold samples in a beamline. The heating elements inside the copper block were spliced to a 120-VAC standard power cord, which was then plugged into a temperature controller. Testing revealed an inadequate splicing of the heating element to the power cord, which then shorted to the copper block. In addition, the equipment ground conductor was terminated in a location inadequate for proper protection, as there was no ground path between the ground conductor and the copper block. After undergoing repairs, proper ground connection, and inspection testing, the equipment was returned to service.

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

Figure 1 – Three-Year Trend of Electrical Shocks

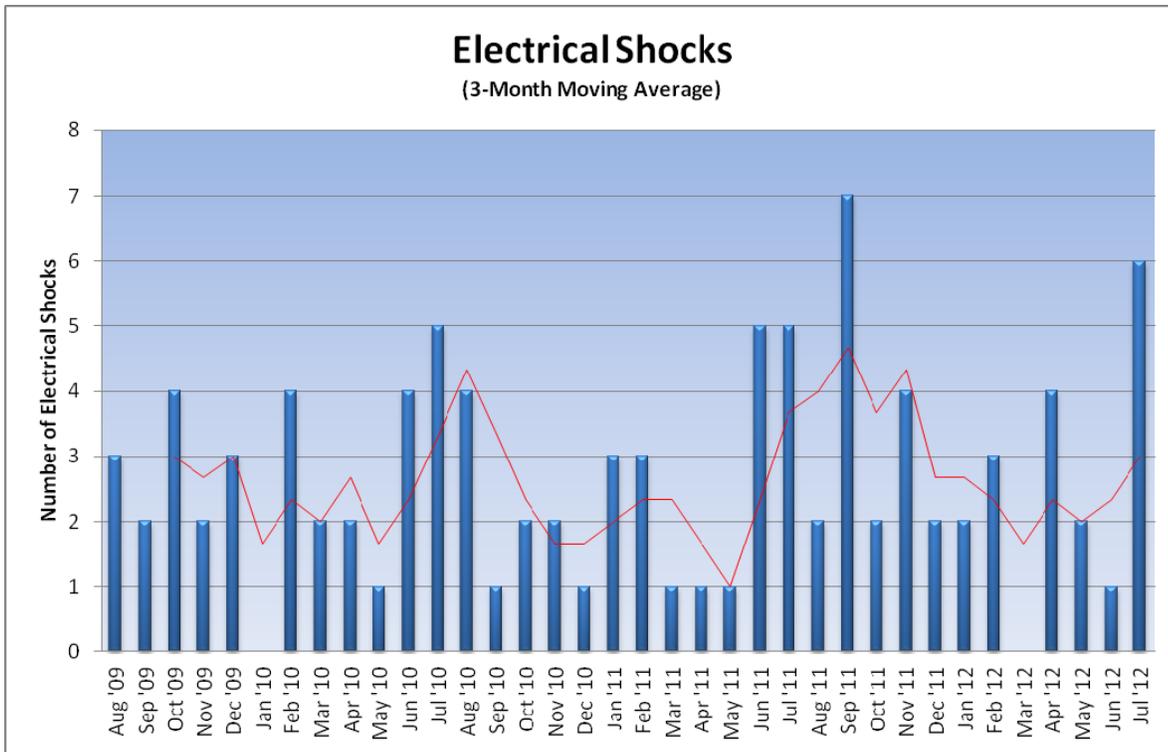


Figure 2 shows electrical shock by worker type. The majority of shocks (about 75 percent) involve non-electrical workers.

Figure 2 - Electrical Shock by Worker Type

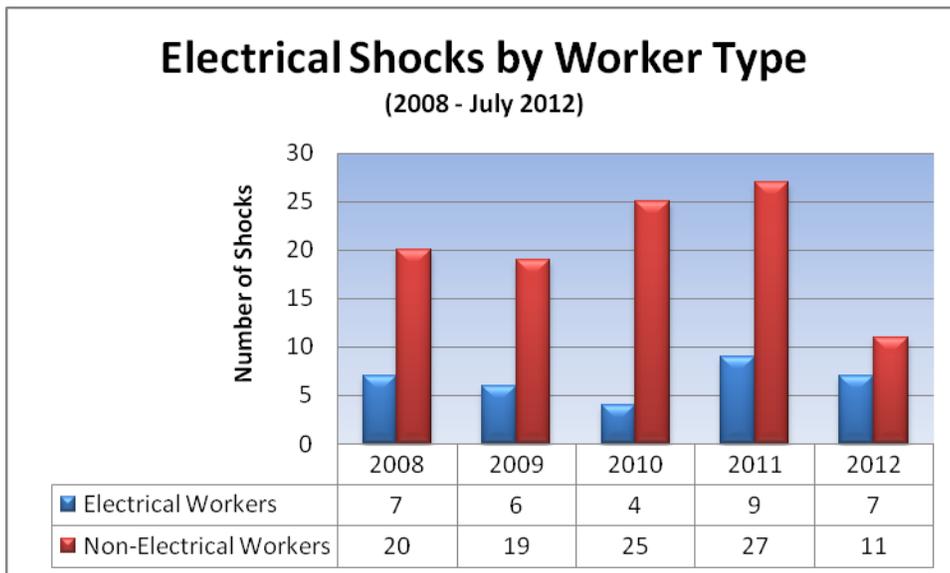
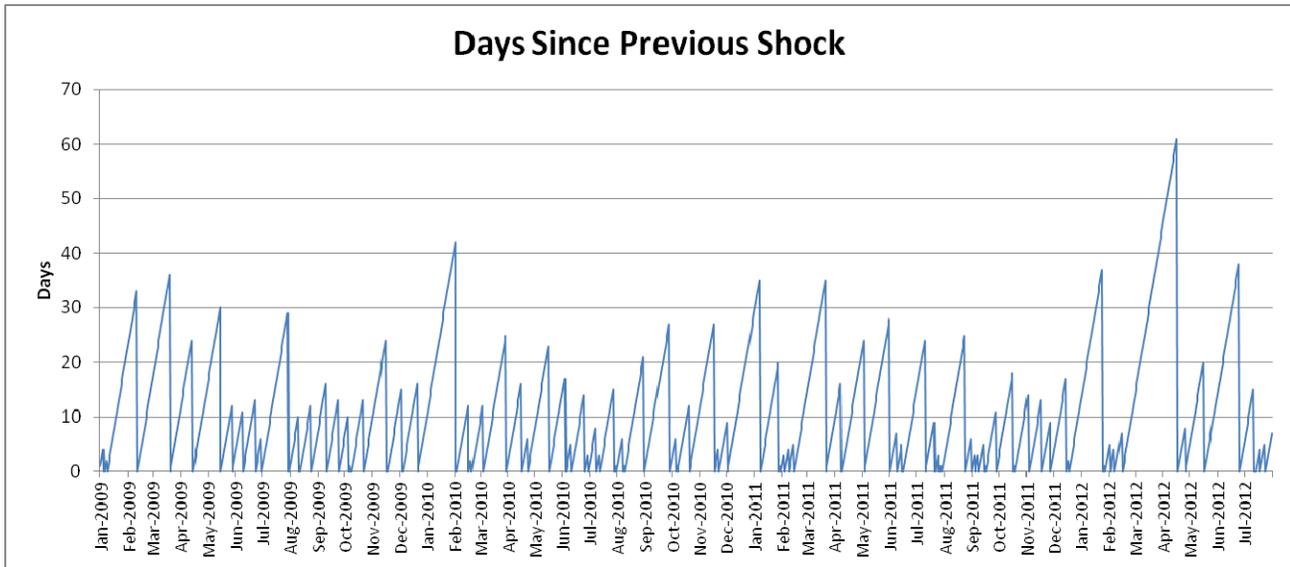


Figure 3 shows the number of days since the previous electrical shock for the DOE complex. The longest interval was 61 days (April 16, 2012) and the present interval is 7 days as of July 31.

Figure 3 - Days since Previous Shock



Electrical Intrusion

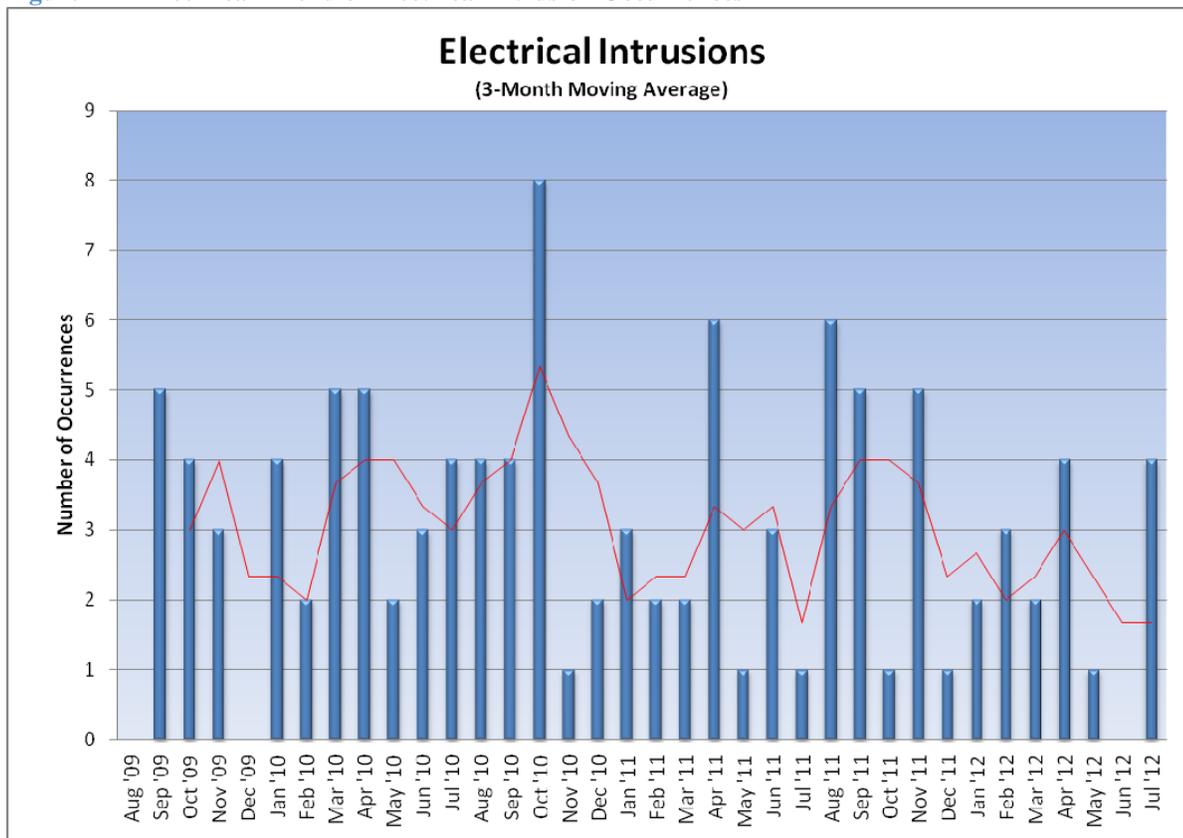
In July, the number of electrical intrusion occurrences (i.e., cutting/penetrating, excavating, or vehicle contact of electrical conductors) increased from zero in June to four. These four occurrences are summarized below.

1. While excavating a trench to install a new natural gas transmission line, an unexpected energized 240-volt power line was uncovered. An excavation permit had been issued and drawings and sub-surface data had been reviewed. A mini-excavator and hand digging were used alternately due to the proximity of an existing water line, which had been identified marked. Once clear of the water line, the mini-excavator continued digging and made two or three passes when some seepage and a blue warning tape were noticed in the trench. Hand digging revealed an unidentified line that had been scraped with the mini-excavator. The excavation was stopped and a supervisor inspected the unidentified line, rechecked all drawings and the permit information and verified the line was not identified in existing documents. Further investigation revealed that the line provided power line to some monitoring wells. Damage to the power line was limited to the outer plastic sheath the underlying metal armor was not affected. Power was disconnected, and the plastic sheath of the power line was repaired.
2. A subcontractor backhoe operator struck and broke a conduit that ran under a sidewalk while repairing the sidewalk. The electrical conductors inside the conduit were not damaged. The conduit was listed on the excavation map but not physically identified on the sidewalk. While the 480-volt lines within the damaged conduit were de-energized at the time of the event, they would have become energized once the lighting photo-cell closed due to darkness. There were no injuries resulting from this event.

3. A subcontractor technician cut a 100-volt communication cable that connected a water cooling chiller to a Transmission Electron Microscope. The cable was cut without establishing a lockout/tagout of the associated circuit breaker, because the technician thought the cable was a low voltage cable. The technician had de-energized both the microscope and the chiller via the microscope's internal interlocks, but did not establish a lockout/tagout of the circuit breaker. An investigation also revealed that responsibility for the technician's work was not clearly established between site organizations. As a result, there was no valid work authorization or Subcontractor Job Hazard Analysis in place and no pre-job briefing was performed. There were no hazardous energy exposures or injuries.
4. While installing HVAC ductwork in an office trailer, the blade of a battery-powered reciprocating saw hit a metal-clad flexible cable containing energized conductors, causing a circuit breaker to trip and a loss of lighting. The incident occurred while making the last of four drywall cuts after a small opening was initially made to enable a visual inspection for electrical utilities prior to cutting the needed larger openings. There was no personnel contact with electrical power or injuries.

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

Figure 4 – Three-Year Trend of Electrical Intrusion Occurrences



Hazardous Energy Control

In July there were five reported occurrences involving lockout/tagout (LOTO), which is an increase from the four occurrences reported in June. Three of these occurrences resulted from not hanging locks when required and the others involved not signing on to the LOTO and not waiting until zero energy condition had been verified. There also were occurrences involving procedure non-compliance and discovery of hazardous energy. These events are summarized in the following sections.

Occurrences Involving Lockout/Tagout

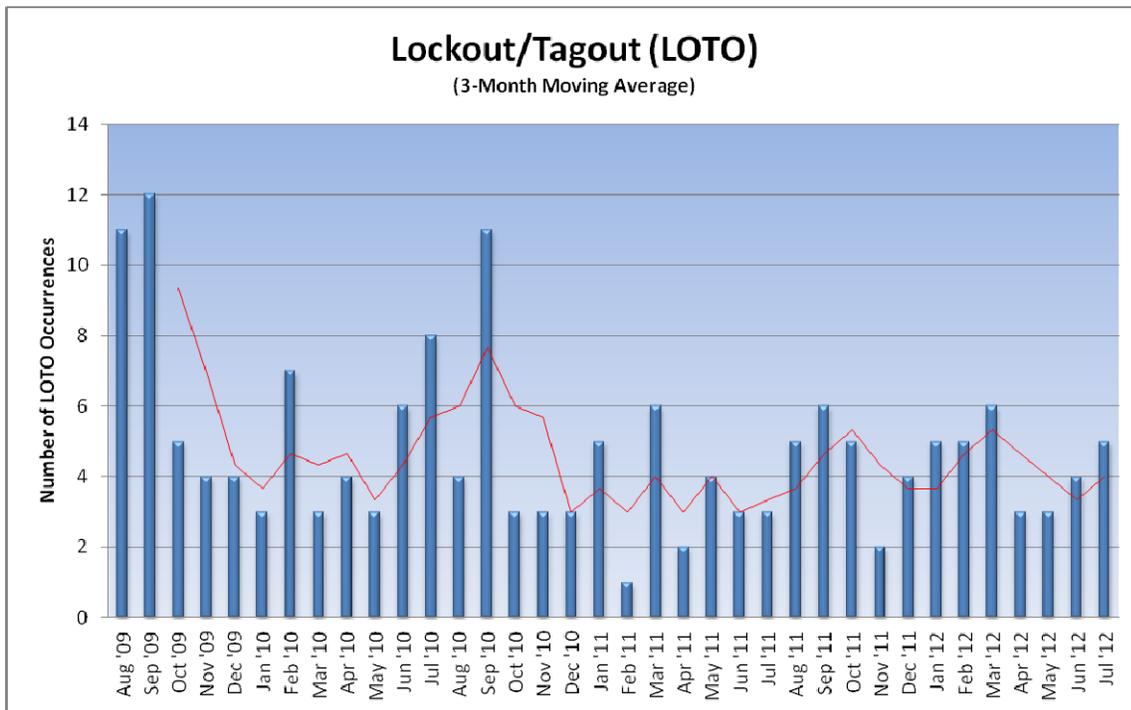
The fifth LOTO occurrence was reported as occurrence number 3 under the Electrical Intrusion section. The remaining four occurrences are summarized below.

1. An internal investigation determined that a LOTO violation had occurred while project workers were removing floor receptacles that were considered tripping hazards. Multiple receptacle circuits were isolated at a panel box through direct line of sight control without applying proper locks and tags. No injuries were reported.
2. Three subcontractor workers did not apply their individual LOTO to a breaker box while replacing an HVAC unit on mobile office, which is contrary to a recent interpretation of the site-wide electrical safety procedure. The three workers were part of a four-person team to replace the HVAC unit. The fourth person on the team, an electrician, applied the appropriate LOTO, verified zero energy and replaced the unit with the other three workers. Discussions with the facility representative concluded that this long-standing LOTO practice of the subcontractor was no longer acceptable and that each of the other three non-electricians supporting the HVAC replacement should apply their individual LOTO to the breaker box.
3. An electrician performed work under a LOTO that he had not signed onto as an Authorized Employee. Two work crews, each with an electrician and pipefitter, were performing maintenance on the associated heating, ventilation, and air-conditioning units on two mobile trailers under a separate LOTO. Each electrician would act as the (primary) worker for one of the trailers. Once the primary worker for one trailer had completed their task, they asked the primary worker for the other trailer to (verify) the work as completed. During the inspection of the work, he noticed that a bundle of wires needed to be relocated he relocated the wires; however, because he was not signed onto the LOTO, he violated procedures when moving the wires.
4. A staff member opened a power cabinet downstream of a breaker in a 480-volt power panel after a lock had been applied, but before the zero energy verification had been completed. The proper personal protective equipment was not worn when the door was opened. The resulting zero energy check confirmed that the circuit was not energized. A critique was held.

Figure 5 shows a 3-year trend of LOTO occurrences for the DOE complex. Although there was a small increase from last month, we can see a general decrease since March in the

number of occurrences involving the implementation of lockout/tagout for electrical work during this period. The monthly average is 4.8 occurrences.

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



Occurrences Involving Hazardous Energy Control Procedure Noncompliance

A signature omission was discovered during a review of a LOTO that was put in place before a site-wide LOTO stand-down. The omission was discovered during the required walk down and review that are a part of the current LOTO resumption activities. The Issuing Authority had neglected to sign the permit approval line indicating final approval before the Service Supervisor signed the next section accepting the LOTO. No personnel were exposed to hazardous energy as a result of the administrative error.

Occurrences Involving the Discovery of Uncontrolled Hazardous Energy

There were five occurrences involving the discovery of uncontrolled hazardous energy. Three of them were covered in the Electrical Intrusion section (occurrences 1, 2 and 4). The other two occurrences are summarized below.

1. The cover of a 110-volt receptacle was found to be partially detached from the receptacle box and electrical conductors were exposed. A maintenance request had been initiated on when the receptacle cover was first discovered to be loose, but still attached to the receptacle with no conductors exposed. Appropriate corrective actions were taken. No personnel contacted or were injured by hazardous electrical energy.
2. An electrician ordered a subcontractor equipment service technician to stop working in on a freezer with the side panel removed since the work possibly exposed the technician to 208

volts. The electrician questioned the technician about the technician’s possible exposure to 208 volts since the refrigerator was plugged in, even though the technician stated the circuit board he was troubleshooting was only 20 volts. The electrician ordered the technician to stop work. An electrical safety subject matter expert determined that the potential exposure was 208 volts, which exceeds the threshold for an energized electrical work permit and is contrary to the subcontractor job hazard analysis.

Electrical Near Miss

In July, there were two occurrences that were considered to be an electrical near miss, which is the same as last month. These two near-miss occurrences were discussed in the Electrical Intrusion section. The first occurrence involved the backhoe that hit a buried 480-volt exterior lighting circuit and the second occurrence involved cutting an energized 120-volt circuit with a hand-held power saw.

Monthly Occurrences Tables

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

Table 1 - Breakdown of Electrical Occurrences

Number of Occurrences	Involving:	Last Month
6	Electrical Shocks	1
0	Electrical Burns	0
5	Hazardous Energy Control (LOTO)	4
2	Inadequate Job Planning	2
2	Inadvertent Drilling/Cutting of Electrical Conductors	0
2	Excavation of Electrical Conductors	0
0	Vehicle Intrusion of Electrical Conductors or Equipment	0
2	Electrical Near Misses	2
9	Electrical Workers	5
7	Non-Electrical Workers	4
6	Subcontractors	1

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 16 reports.

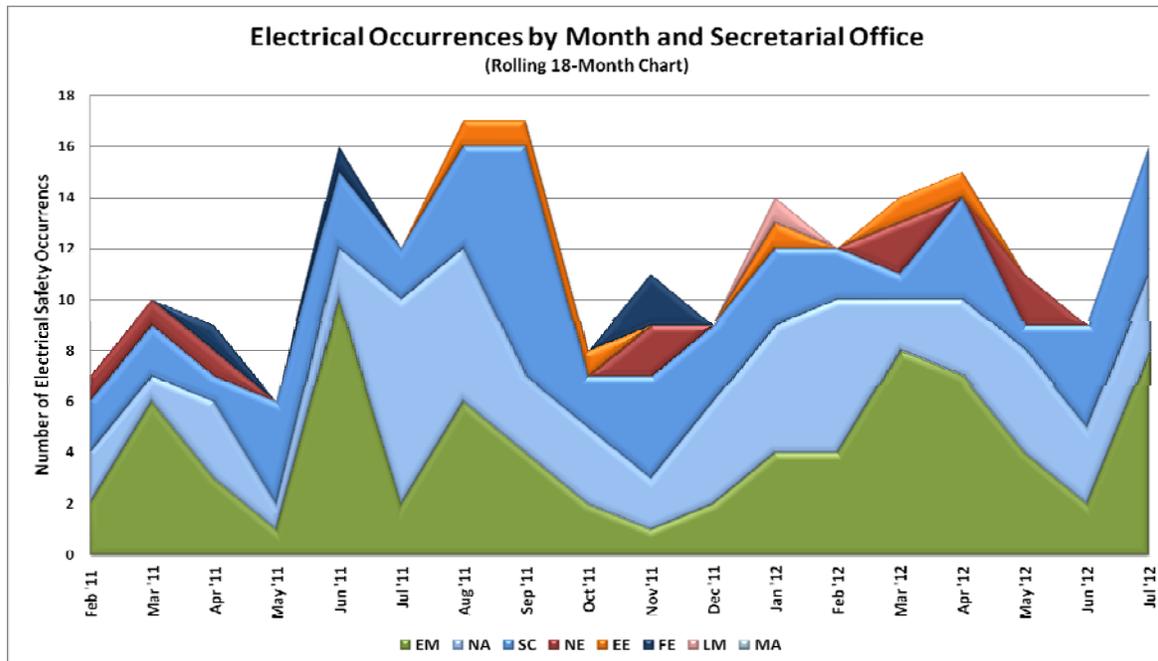
Table 2 provides a summary of the electrical safety occurrences for CY 2012. The present monthly average has increased from last month's value of 12.5/month. The average number of occurrences a year ago (July 2011) was 10.4/month.

Table 2 - Summary of Electrical Occurrences

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
July	16	6	0	0
June	9	1	0	0
May	11	2	1	0
April	15	4	0	0
March	14	0	0	0
February	12	3	0	0
January	14	2	0	0
2012 total	91 (avg. 13.0/month)	18	1	0
2011 total	136 (avg. 11.3/month)	36	5	0
2010 total	155 (avg. 12.9/month)	28	2	0
2009 total	128 (avg. 10.7/month)	25	3	0
2008 total	113 (avg. 9.4/month)	26	1	0
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 6 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.

Figure 6 - Electrical Occurrences by Month and Secretarial Office



Electrical Severity

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

Electrical Severity Scores

The electrical severity scores (ES) are calculated using 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. Six 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.

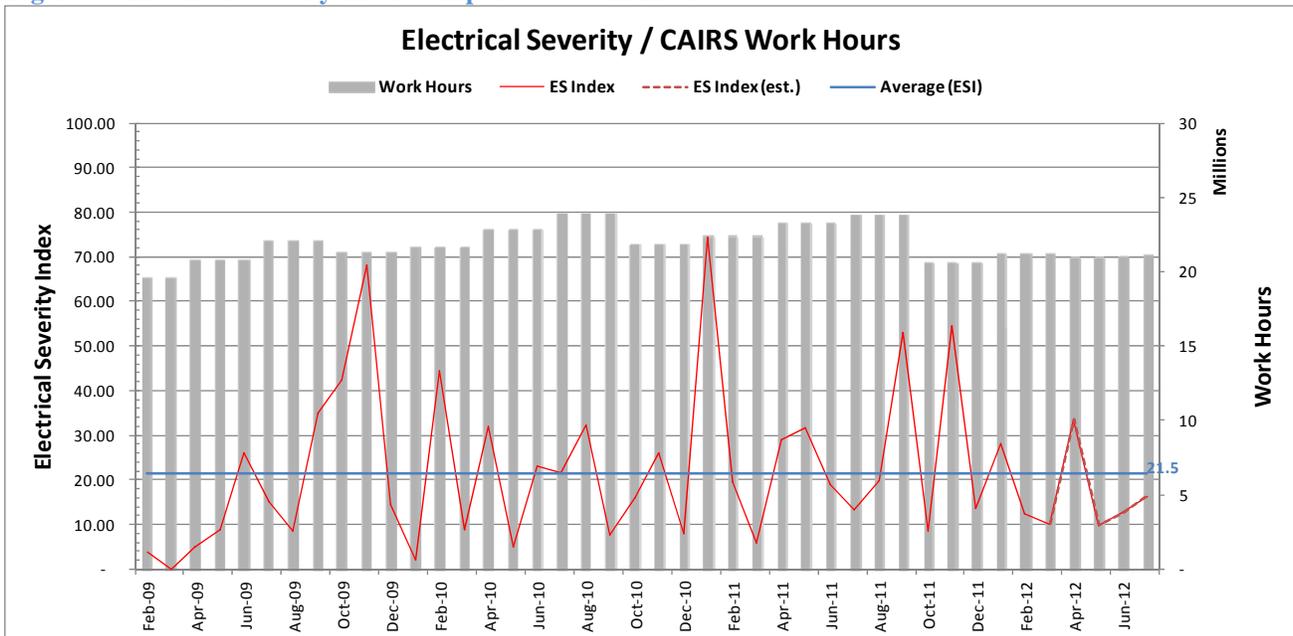
Table 3 – Classification of Electrical Safety Occurrences by ES Score

Occurrence Classification	Electrical Severity Score	Number of Occurrences
HIGH	≥ 1750	0
MEDIUM	31-1749	7
LOW	1-30	3

Electrical Severity Index

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

Figure 7 - Electrical Severity Index Compared to Work Hours



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

Table 4 - Electrical Severity Index

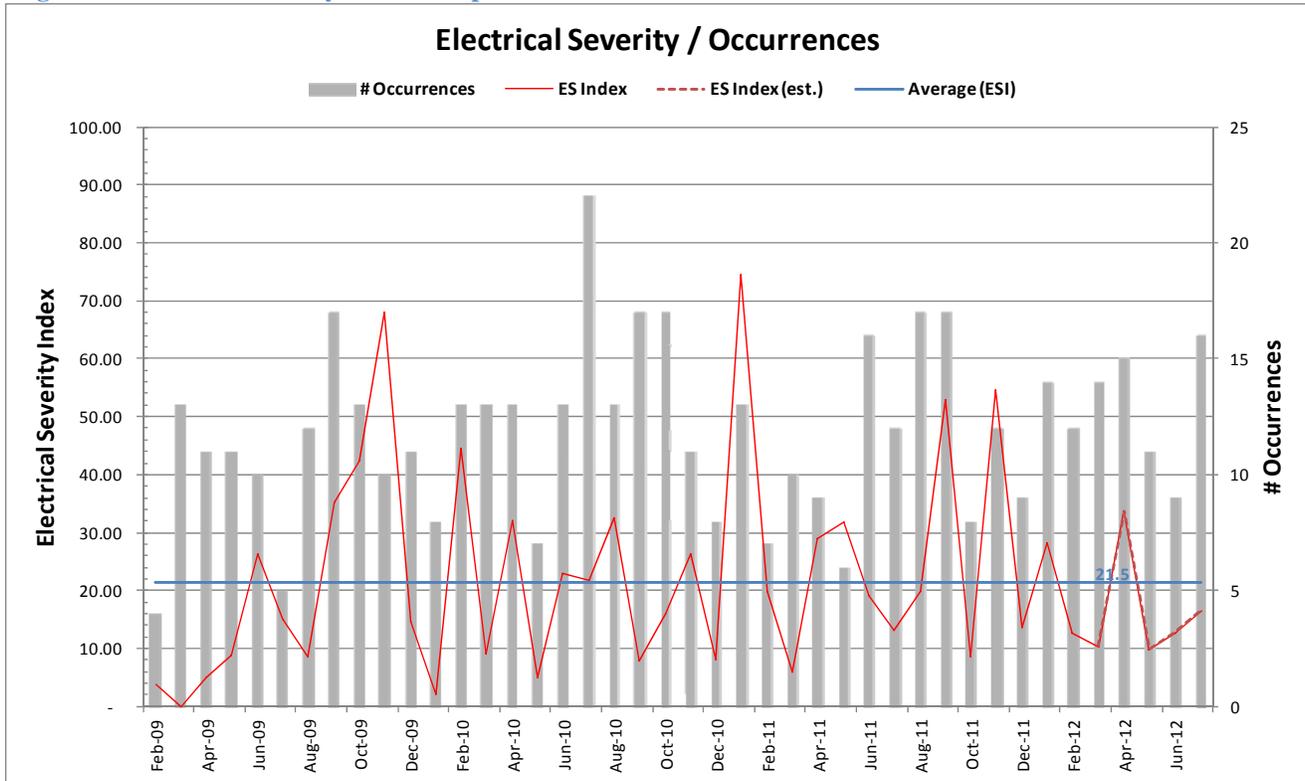
Category	June	July	Δ
Total Occurrences	9	16	+7
Total Electrical Severity	1,331	1,730	+409
Estimated Work Hours	21,022,147* (21,022,147)	21,097,134	+68,987
ES Index	12.66* (12.66)	16.50	+3.84
Average ESI	21.6	21.5	-0.1

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

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

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

Figure 8 - Electrical Severity Index Compared to Number of Occurrences



The average ESI (21.5) has decreased for three consecutive months. The lowest average ESI was 19.2 in June 2010. Figure 9 shows the number of days since the previous high severity occurrence. The present interval is 455 days as of July 31. The previous longest interval was 181 days in 2009.

Figure 9 - Days since Previous High Severity Occurrence

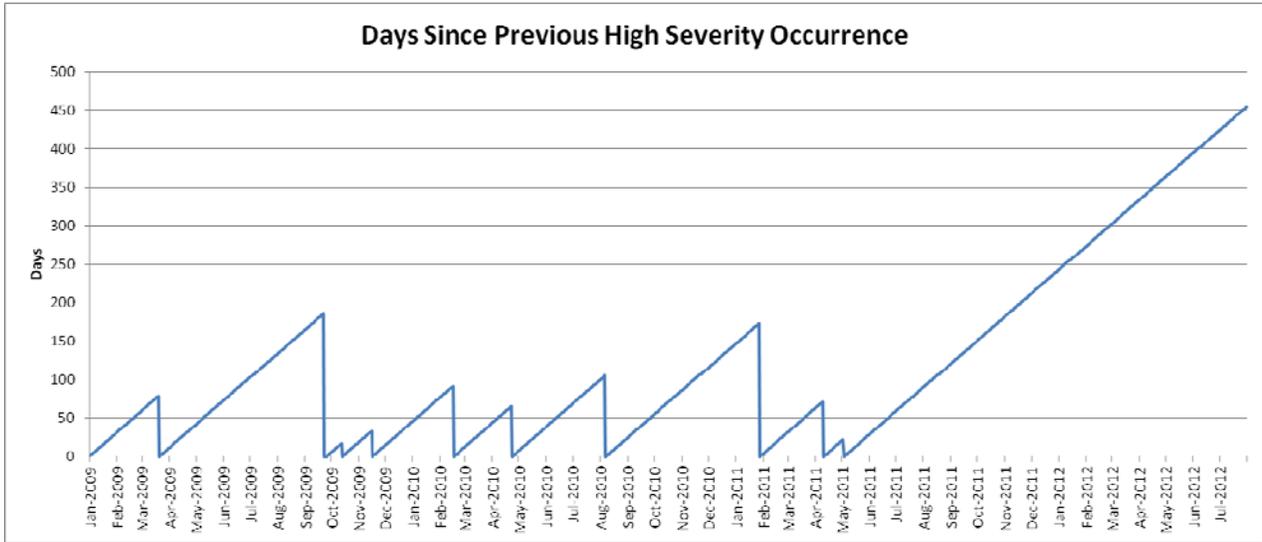
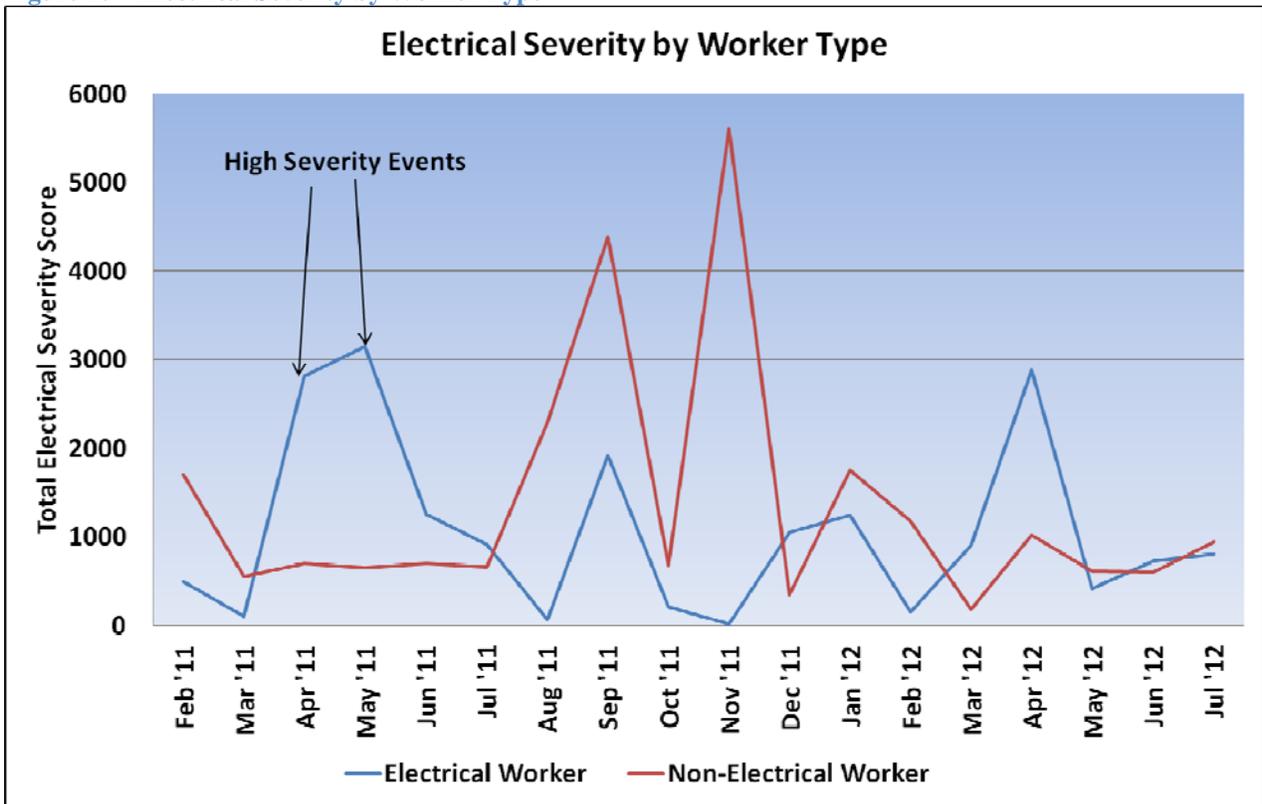


Figure 10 shows the total electrical severity score by worker type for each month.

Figure 10 – Electrical Severity by Worker Type



Electrical Workers typically have the fewest number of occurrences but they had High-Severity events while Non-Electrical Workers have Low to Medium ES scores. The ES scores for July were close with Non-Electrical Workers at 950 and Electrical Workers at 810.

Summary of Occurrences by Severity Band

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

Figure 11 - Occurrences by Electrical Severity Band (Percentage)

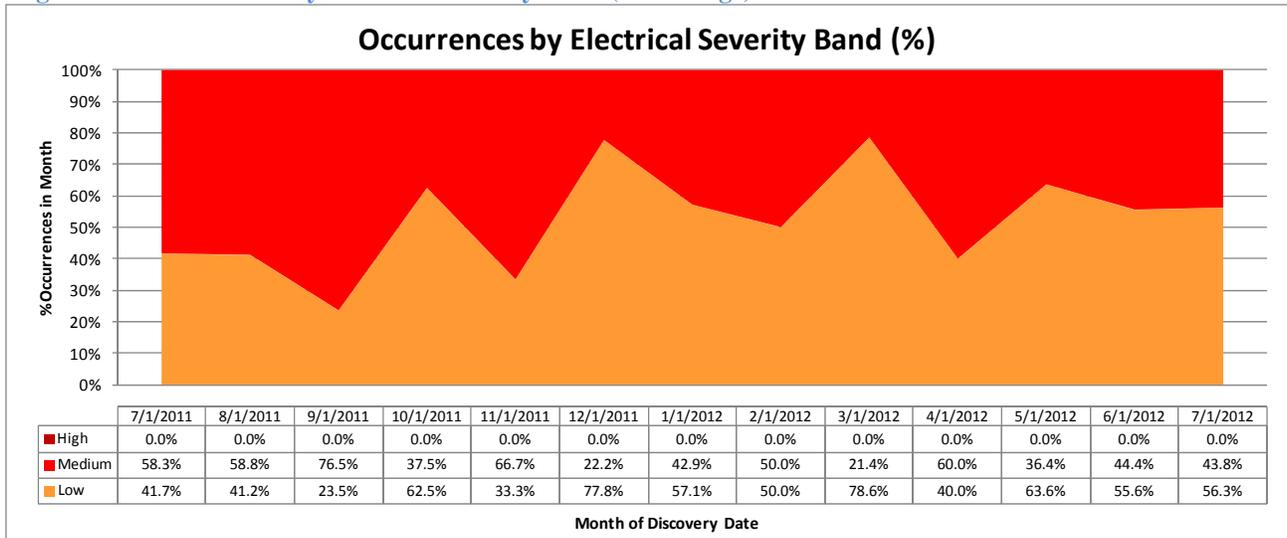
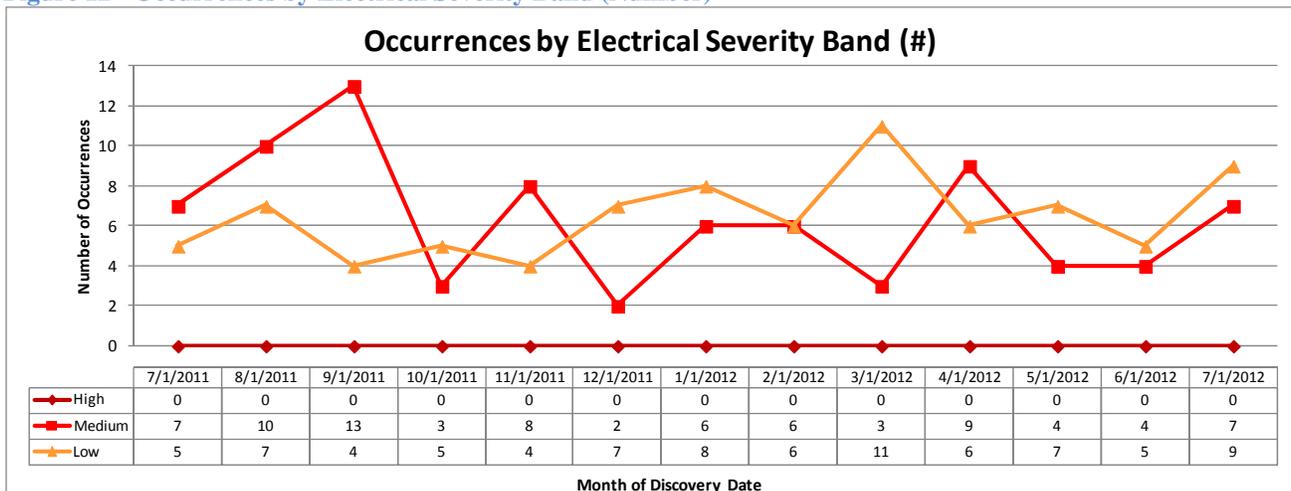


Figure 12 - Occurrences by Electrical Severity Band (Number)

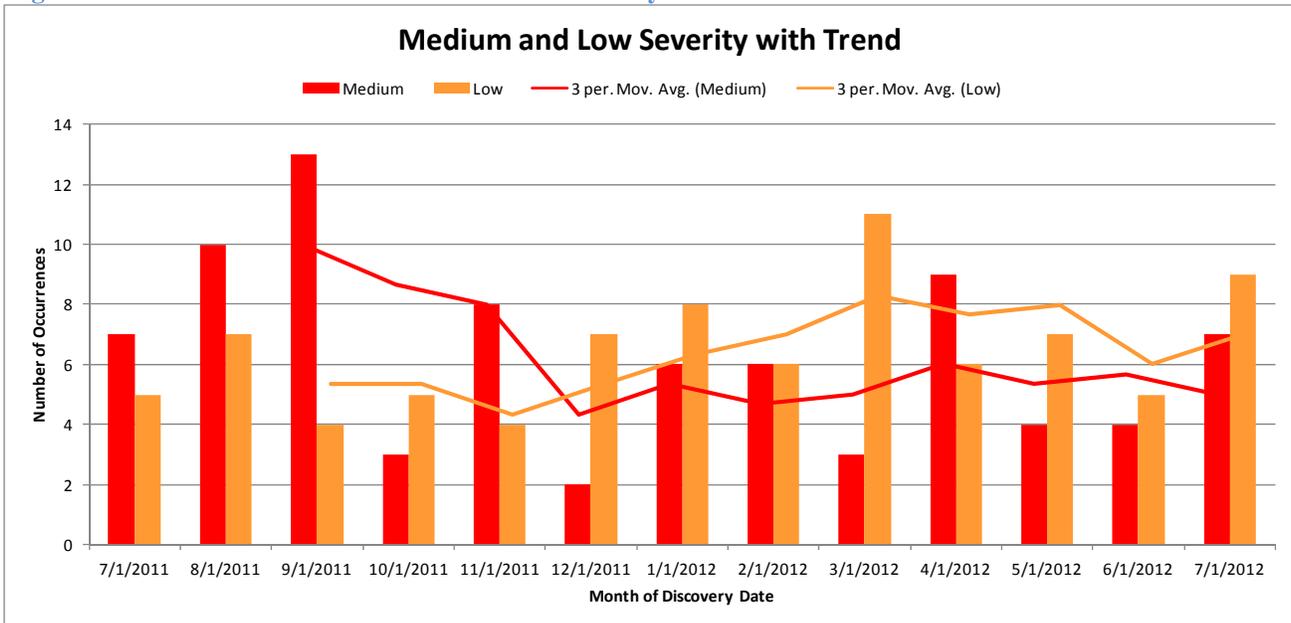


What can be seen from the previous two charts is that the number of occurrences with High electrical severity scores has remained at zero for the past 13 months and that the number of occurrences with Medium scores remains below the number of Low severity occurrences.

Medium and Low Severity with Trend

Figure 13 focuses on the Medium and Low severity data series for July 2011 through July 2012. Trend lines are included for each, using a 3-month moving average.

Figure 13 - Trend of Medium and Low Electrical Severity Occurrences



The 3-month moving average shows a decreasing trend for Medium severity occurrences while Low severity occurrences have increased. 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 – July 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	EM--PPPO-FBP-PORTSDD-2012-0009	While excavating to install a gas line, an unexpected 240V power line was uncovered.						X			3	2E(2)	0
2	EM--PPPO-FBP-PORTSDD-2012-0010	Receptacle circuits were isolated at a panel via direct line of sight control without applying LOTO.				X					4	2E(3)	110
3	EM-CBFO--WTS-WIPP-2012-0008	A 110V receptacle was partially detached from a receptacle box exposing electrical conductors.									3	2E(2)	20
4	EM-RL--CPRC-WESF-2012-0001	Two workers experienced a tingling sensation while operating the On/Off switch on a mister.	XX								2	2E(1)	330
5	EM-RL--WCH-GENAREAS-2012-0004	Subcontractors did not apply their individual LOTO to a breaker box while replacing a HVAC unit.				X					3	2E(3)	0
6	EM-RP--BNRP-RPPWTP-2012-0015	An electrician worked under a LOTO and had not signed on as an Authorized Employee.				X					4	2E(3)	0
7	EM-SR--SRNS-SIPS-2012-0004	Backhoe hits de-energized 480V underground electrical conduit during excavation.					X	X			3	2E(2)	0
8	EM-SR--SRR-WSALT-2012-0001	A vendor brushed up against wires and felt a tingling sensation while working on a compressor.	X				X				2	2E(1)	330
9	NA--KCSO-AS-KCP-2012-0004	A worker received a shock while operating a 110V peristaltic pump.	X								2	2E(1)	330
10	NA--SS-SNL-NMFAC-2012-0004	A contract electrician received a shock from TVSS that was missing a ground wire.	X								2	2E(1)	330
11	NA--YSO-BWXT-Y12SITE-2012-0031	A signature omission was on a LOTO was discovered during a review.									4	2E(3)	0

Attachment 1

No	Report Number	Event Summary	SHOCK	BURN	ARCF ⁽¹⁾	LOTO ⁽²⁾	PLAN ⁽³⁾	EXCAV ⁽⁴⁾	CUT/D ⁽⁵⁾	VEH ⁽⁶⁾	SC ⁽⁷⁾	RC ⁽⁸⁾	ES ⁽⁹⁾
12	SC--BSO-LBL-ALS-2012-0001	A staff member felt a minor tingling while connecting a 120V sample heating apparatus.	X								2	2E(1)	140
13	SC--BSO-LBL-EHS-2012-0003	A technician cut a 100-volt communication cable without establishing a LOTO.				X	X		X		4	2E(3)	20
14	SC--BSO-LBL-LSD-2012-0002	A technician was seen working in a cabinet that had exposed energized 208V circuits.					X				3	2E(2)	20
15	SC-ORO--ORNL-X10BOPLANT-2012-0004	A battery-powered saw cut an energized 120V metal-clad cable, causing a circuit breaker to trip.							X		3	2E(2)	110
16	SC-ORO--ORNL-X10EAST-2012-0004	A worker opened a disconnect box downstream of a 480V power panel before a zero energy check.				X					4	2E(3)	0
	TOTAL		6 (note)	0	0	5	4	2	2	0			

Note: Although there were five “events” reporting electrical shocks this month, event No. 4 had two 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 – July 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	EM--PPPO-FBP-PORTSDD-2012-0009	While excavating to install a gas line, an unexpected 240V power line was uncovered.		X		X					X			
2	EM--PPPO-FBP-PORTSDD-2012-0010	Receptacle circuits were isolated at a panel via direct line of sight control without applying LOTO.	X				X				X			
3	EM-CBFO--WTS-WIPP-2012-0008	A 110V receptacle was partially detached from a receptacle box exposing electrical conductors.		X			X				X			
4	EM-RL--CPRC-WESF-2012-0001	Two workers experienced a tingling sensation while operating the On/Off switch on a mister.		X		X					X			
5	EM-RL--WCH-GENAREAS-2012-0004	Subcontractors did not apply their individual LOTO to a breaker box while replacing a HVAC unit.	X		X		X				X			
6	EM-RP--BNRP-RPPWTP-2012-0015	An electrician worked under a LOTO and had not signed on as an Authorized Employee.	X				X				X			
7	EM-SR--SRNS-SIPS-2012-0004	Backhoe hits de-energized 480V underground electrical conduit during excavation.		X	X	X					X			X
8	EM-SR--SRR-WSALT-2012-0001	A vendor brushed up against wires and felt a tingling sensation while working on a compressor.	X		X	X					X			
9	NA--KCSO-AS-KCP-2012-0004	A worker received a shock while operating a 110V peristaltic pump.		X		X					X			
10	NA--SS-SNL-NMFAC-2012-0004	A contract electrician received a shock from TVSS that was missing a ground wire.	X		X	X					X			
11	NA--YSO-BWXT-Y12SITE-2012-0031	A signature omission was on a LOTO was discovered during a review.	X				X				X			

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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			
12	SC--BSO-LBL-ALS-2012-0001	A staff member felt a minor tingling while connecting a 120V sample heating apparatus.		X		X					X			
13	SC--BSO-LBL-EHS-2012-0003	A technician cut a 100-volt communication cable without establishing a LOTO.	X		X	X					X			
14	SC--BSO-LBL-LSD-2012-0002	A technician was seen working in a cabinet that had exposed energized 208V circuits.	X		X		X				X			
15	SC-ORO--ORNL-X10BOPLANT-2012-0004	A battery-powered saw cut an energized 120V metal-clad cable, causing a circuit breaker to trip.		X		X					X			X
16	SC-ORO--ORNL-X10EAST-2012-0004	A worker opened a disconnect box downstream of a 480V power panel before a zero energy check.	X				X				X			
	TOTAL		9	7	6	9	7	0	0	0	16	0	0	2

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 55798 OR(s) with 59108 occurrences(s) as of 8/13/2012 6:53:54 AM
 Query selected 16 OR(s) with 16 occurrences(s) as of 8/13/2012 10:01:05 AM

Download this report in Microsoft Word format. 

1)Report Number: [EM--PPPO-FBP-PORTSDD-2012-0009](#) **After 2003 Redesign**
Secretarial Office: Environmental Management
Lab/Site/Org: Portsmouth Gaseous Diffusion Plant
Facility Name: Portsmouth Decontamination and Decommissioning
Subject/Title: Unexpected Discovery of an Underground Electrical Line
Date/Time Discovered: 07/03/2012 08:30 (ETZ)
Date/Time Categorized: 07/03/2012 10:15 (ETZ)
Report Type: Notification
Report Dates:

Notification	07/03/2012	17:17 (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: 3) Develop and Implement Hazard Controls
Subcontractor Involved: Yes
 Geiger Brothers Inc.

Occurrence Description: While excavating a trench to install a new natural gas transmission line, an unexpected 240 volt power line was uncovered. An excavation permit had been issued and drawings and sub-surface data reviewed. Excavation had proceeded cautiously with alternate mini-excavator and hand digging due to the proximity of an existing water line which had been identified and the location marked as part of pre-excavation activities. While approaching the marked location of the existing water line, a red warning tape was uncovered approximately a foot below the surface.

Excavation continued using the mini-excavator and hand digging. The water line was located and the excavation continued with hand digging for about twelve feet. Once clear of the water line, the mini-excavator

continued digging with caution and made two or three passes when some seepage and a blue warning tape were noticed in the trench. The operator stopped digging with the mini-excavator; hand digging revealed 3-4 feet of an unidentified line that had been scraped with the mini-excavator. All excavation was stopped at that time. The supervisor was notified; he inspected the unidentified line, rechecked all drawings and permit information and verified the line was not identified in existing documents.

Further investigation revealed that the line was an energized 240 volt power line for some monitoring wells. Damage to the power line was limited to the outer plastic sheath, the underlying metal armor was not affected. Power was disconnected, and an as-built survey of the trench, waterline, and power line was performed. The outer plastic sheath of the power line was repaired under single-source lockout-tagout. Excavation will not resume until the accuracy and completeness of the excavation permit is determined and verification is made of proximity requirements for the new gas line and existing utilities.

Cause Description:

Operating Conditions: Normal Operations

Activity Category: Construction

Immediate Action(s):

- Excavation halted
- Power line identified, isolated and repaired
- A Fact Finding meeting was held and an Event Timeline was created

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:
By When:

Division or Project: X-690 Natural Gas Transmission Line Installation

Plant Area: H5

System/Building/Equipment: Trench excavation for natural gas line.

Facility Function: Environmental Restoration Operations

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control
01I--Inadequate Conduct of Operations - Safety System Actuation/Evacuation

- 07D--Electrical Systems - Electrical Wiring
- 08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues
- 11G--Other - Subcontractor
- 12C--EH Categories - Electrical Safety
- 14D--Quality Assurance - Documents and Records Deficiency

HQ Summary:

On July 3, 2012, while excavating a trench to install a new natural gas transmission line, an unexpected 240 volt power line was uncovered. An excavation permit was issued and drawings and sub-surface data was reviewed. Excavation had proceeded cautiously with alternate mini-excavator and hand digging due to the proximity of an existing water line, which was identified and the location marked as part of pre-excavation activities. While approaching location of the existing water line, a red warning tape was uncovered approximately a foot below the surface. Excavation continued and the water line was located. Once clear of the water line, the mini-excavator continued digging and made two or three passes when some seepage and a blue warning tape were noticed in the trench. Hand digging revealed an unidentified line that had been scraped with the mini-excavator. All excavation was stopped. The supervisor was notified and he inspected the unidentified line, rechecked all drawings and the permit information and verified the line was not identified in existing documents. Further investigation revealed that the line was an energized 240 volt power line for some monitoring wells. Damage to the power line was limited to the outer plastic sheath the underlying metal armor was not affected. Power was disconnected, and the plastic sheath of the power line was repaired under a single source lockout tagout. A fact finding meeting was held.

Similar OR Report Number:

Facility Manager:

Name	CADE, MARK D.
Phone	(740) 897-4062
Title	QA Specialist

Originator:

Name	CADE, MARK D.
Phone	(740) 897-4062
Title	

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/03/2012	11:45 (ETZ)	Joel Bradburne	DOE-PORT
07/03/2012	11:57 (ETZ)	Jamie Jameson	PORTS-FB
07/03/2012	12:51 (ETZ)	Ken Whittle	PORTS-FB

Authorized Classifier(AC): Doug Fogel Date: 07/03/2012

2)Report Number: [EM--PPPO-FBP-PORTSDD-2012-0010](#) After 2003 Redesign

Secretarial Office: Environmental Management

Lab/Site/Org: Portsmouth Gaseous Diffusion Plant

Facility Name: Portsmouth Decontamination and Decommissioning

Subject/Title: Lockout/Tagout (LOTO) Violation

Date/Time Discovered: 07/19/2012 08:00 (ETZ)

Date/Time Categorized: 07/20/2012 12:10 (ETZ)

Report Type: Notification/Final

Report Dates:

Notification	07/23/2012	15:54 (ETZ)
Initial Update	07/23/2012	15:54 (ETZ)
Latest Update	07/23/2012	15:54 (ETZ)
Final	07/23/2012	15:54 (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:

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

Subcontractor Involved: No

Occurrence Description: On July 19, 2012, a concern was raised of a possible lockout/tagout (LOTO) violation of work performed on July 17, 2012. Project workers were removing floor receptacles due to their being trip hazards. An internal investigation determined a LOTO violation occurred on July 17, 2012 when multiple receptacle circuits were isolated at a panel box through direct line of sight control without applying proper locks and tags. No injuries were reported.

Cause Description:

Operating Conditions: Normal Operations

Activity Category: Facility Decontamination/Decommissioning

Immediate Action(s):

- Electrical work by the project crew to the X-100 Building D&D vault area was paused.
- FBP Management, Plant Shift Superintendent and DOE were notified.
- An Occurrence Report was initiated.
- A Problem Report was generated.
- A FAST TRACK reminder regarding Lockout/Tagout (LOTO) requirements and inappropriateness of reliance on line of sight control was sent to all PORTS DDPORTS employees.

--A Fact Finding meeting was held and an Event Timeline was created.
 An internal corrective action plan will be developed.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: D&D of X-100 Administration Building

Plant Area: G5

System/Building/Equipment: X-100 Building, 2nd Floor Vault

Facility Function: Environmental Restoration Operations

Corrective Action:

Lessons(s) Learned:

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

HQ Summary: On July 19, 2012, an internal investigation determined a LOTO violation occurred on July 17, while project workers were removing floor receptacles that were considered tripping hazards. Multiple receptacle circuits were isolated at a panel box through direct line of sight control without applying proper locks and tags. No injuries were reported. Management was notified and electrical work by the project crew to the X-100 Building was paused.

Similar OR Report Number:

Facility Manager:

Name	Dennis Carr
Phone	(740) 897-3532
Title	Fluor-B&W/Portsmouth Deputy Program Mgr.

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
07/20/2012	13:51 (ETZ)	Dee Powell	DOEPORTS
07/20/2012	13:55 (ETZ)	Jamie Jameson	PORTSFBP

07/20/2012	13:56 (ETZ)	Dennis Carr	PORTSFBP
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Authorized Classifier(AC): Dan ODell **Date:** 07/23/2012

3)Report Number: [EM-CBFO--WTS-WIPP-2012-0008](#) **After 2003 Redesign**
Secretarial Office: Environmental Management
Lab/Site/Org: Carlsbad Field Office
Facility Name: Waste Isolation Pilot Plant
Subject/Title: Discovery of uncontrolled electrical hazardous energy source
Date/Time Discovered: 07/24/2012 13:00 (MTZ)
Date/Time Categorized: 07/25/2012 15:00 (MTZ)
Report Type: Update

Report Dates:

Notification	07/27/2012	09:20 (ETZ)
Initial Update	07/27/2012	12:50 (ETZ)
Latest Update	07/27/2012	12:50 (ETZ)
Final		

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

Cause Codes:
ISM: 2) Analyze the Hazards
 4) Perform Work Within Controls
 5) Provide Feedback and Continuous Improvement

Subcontractor Involved: No

Occurrence Description: On July 24, 2012, at approximately 1300 hours, a Facility Shift Engineer (FSE) was notified by a Waste Handling Engineer (WHE) that a 110 volt receptacle cover was partially detached from the receptacle box and electrical conductors were exposed. The receptacle is located on the West Waste Handling Dock in the Contact Handled Waste Bay. The partially detached receptacle cover was discovered by a Waste Handling Technician (WHT) while working on the dock with other technicians. The date and time the electrical conductors were exposed was not known. The FSE, WHE, and Facility Shift Manager (FSM) arrived at the dock and established an arc flash boundary. A Lockout/Tagout (LOTO) was applied and absence of power checks were conducted. Electrical maintenance personnel re-attached the receptacle cover and power was restored. No personnel contacted or were injured by hazardous electrical energy.

OCCURRENCE DETAILS:

On July 7, 2012, while unplugging a power cable from the receptacle, a WHT noticed that the receptacle cover was loose but still attached to the receptacle with no conductors exposed. The WHT attached an Equipment Inactivation Tag to the receptacle that noted the loose cover and the need to repair. The WHT also initiated a maintenance Action Request (AR) to repair the loose receptacle cover.

NOTE: The AR initiated on July 7, 2012 to repair the loose receptacle cover was not released to work due to low priority assignment within the work control process. On July 24, 2012, the AR was reassigned a higher priority and issued to work when the detached cover and exposed conductors were discovered.

On July 24, 2012, at approximately 1300 hours, a WHT noticed the partially detached receptacle cover and exposed 110 volt conductors while working on the dock. The WHT reported the condition to the WHE. Work was stopped on the dock and personnel stayed clear of the receptacle. The WHE contacted the FSE and the appropriate steps were taken to place the area in a safe condition. An arc flash boundary was established, the detached receptacle cover was replaced, tested and the LOTO was removed. Waste handling activities on the dock resumed. The FSM considered the exposed conductors to be a maintenance repair issue and not a reportable occurrence/issue so it was not communicated to the Facility Manager (FM) or Facility Manager Designee (FMD).

On July 25, 2012, at approximately 1323 hours, the FMD received a call from one of the site Safety Representatives wanting to know if the FMD needed pictures of the receptacle and exposed conductors issue that occurred the previous day. The FMD was then supplied a brief description of the issue and pictures. The FMD contacted the FM to discuss the issue. The issue was categorized as a reportable occurrence at 1500 hours.

NOTE: The delay in categorization occurred due to the lack of communication between the FSM and the FM/FMD.

A Root Cause Analysis will be conducted.

Cause Description:

Operating Conditions:

Activity Category:

Immediate Action(s):

Does not apply

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

July 24, 2012:

At 1300 hours, employees stopped working on the dock and were moved away from the area.

At 1320 hours, Facility Shift Engineer established an Arc Flash Boundary.

Electrical circuit was identified and Lockout/Tagout was performed.

Absence of energy checks were performed.

Receptacle outlet cover was repaired prior to end of shift (1600 hours).

UPDATE 7/26/12: Changed system number from ED14 to ED07.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: WTS Operations
By When:

Division or Project:

WTS/WIPP

Plant Area:

CH Bay (dock)

System/Building/Equipment:

ED07/Bld 411/110 receptacle

Facility Function:

Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
01P--Inadequate Conduct of Operations - Inadequate Oral Communication
07D--Electrical Systems - Electrical Wiring
08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
12C--EH Categories - Electrical Safety
14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On July 24, 2012, a Waste Handling Engineer notified the Facility Shift Engineer that the cover of a 110-volt receptacle located on the West Waste Handling Dock in the Contact Handled Waste Bay was partially detached from the receptacle box and electrical conductors were exposed. A maintenance Action Request had been initiated on July 7 when the receptacle cover was discovered loose, but still attached to the receptacle with no conductors exposed. Appropriate corrective actions were taken. No personnel contacted or were injured by hazardous electrical energy.

Similar OR Report Number:

1. NA--LSO-LLNL-LLNL-2012-0004
2. NA--PS-BWP-PANTEX-2010-0014
3. SC--PNSO-PNNL-PNNLBOPER-2010-0021

Facility Manager:

Name	BRYAN, WESLEY
Phone	(575) 234-8250
Title	FACILITY MANAGER

Originator:

Name	KNOX, JEFF W.
Phone	(575) 234-8462
Title	FACILITY MANAGER DESIGNEE

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/24/2012	13:00 (MTZ)	Brad Bradford	WTS/WHE
07/24/2012	13:00 (MTZ)	Joe Bealler	WTS/FSE
07/24/2012	13:02 (MTZ)	Alvy Williams	WTS/FSM
07/25/2012	13:23 (MTZ)	Jeff Knox	WTS/FMD
07/25/2012	13:26 (MTZ)	Wesley Bryan	WTS/FM
07/25/2012	15:10 (MTZ)	Glenn Gamlin	CBFO/FR

Authorized Classifier(AC):

4)Report Number:

[EM-RL--CPRC-WESF-2012-0001](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Hanford Site

Facility Name:

Waste Encapsulation & Storage Fac.

Subject/Title:

Workers Receive Mild Electrical Shock from Portable Misting Unit

Date/Time Discovered:

07/18/2012 11:43 (PTZ)

Date/Time Categorized:

07/18/2012 12:51 (PTZ)

Report Type:

Notification

Report Dates:

Notification	07/19/2012	17:02 (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:

- 3) Develop and Implement Hazard Controls
- 4) Perform Work Within Controls

Subcontractor Involved:

No

Occurrence Description:

Two Workers were turning off an outdoor misting fan (Model: Cooldraft Extreme Ventilation) when they experienced a tingling sensation,

indicating a possible mild shock. The workers were operating the metal on/off switch on the mister when they experienced the tingling sensation. The misting fan was plugged into an outdoor outlet and the mister is equipped with a GFCI built into the cord. The GFCI was tested prior to use without issue. This issue will be preliminarily categorized as an electrical shock pending additional investigation and testing of the associated equipment.

Cause Description:

Operating Conditions: Normal Operations

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

Immediate Action(s): The workers were sent to First Aid for evaluation.
The misting fan was disconnected, cautioned taped, and tagged out of service.
Equipment investigations were initiated.
Similar Equipment was removed from service pending the outcome of the investigation.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: Yes.
Before Further Operation? No
By Whom: WFMP
By When: 09/01/2012

Division or Project: Decommissioning Waste Fuels & Remediation Services

Plant Area: 200E

System/Building/Equipment: 221B

Facility Function: Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned:

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

HQ Summary: On July 18, 2012, two workers were turning off an outdoor misting fan (Model: Cooldraft Extreme Ventilation) when they experienced a tingling sensation, indicating a possible mild shock. The workers were operating the metal On/Off switch on the mister when they experienced the tingling sensation. The misting fan was plugged into an outdoor outlet and the mister is equipped with a Ground Fault Circuit Interrupter (GFCI) built into the cord. The GFCI was tested before use without issue. The workers were sent to First Aid for evaluation. The misting fan was disconnected,

cautioned taped, and tagged out of service. Equipment investigations were initiated and similar equipment was removed from service pending the outcome of the investigation.

Similar OR Report Number:

Facility Manager:

Name	Saueressig, Paul
Phone	(509) 372-0071
Title	Facility Manager

Originator:

Name	FOSTER, DOUGLAS R.
Phone	(509) 373-2386
Title	MANAGER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/18/2012	11:48 (PTZ)	Simiele, Connie	CHPRC
07/18/2012	11:48 (PTZ)	Saueressig, Paul	CHPRC
07/18/2012	12:53 (PTZ)	Earley, Larry	DOE
07/18/2012	14:13 (PTZ)	Trump, Gary	MSA ONC

Authorized Classifier(AC):

5)Report Number: [EM-RL--WCH-GENAREAS-2012-0004](#) After 2003 Redesign
Secretarial Office: Environmental Management
Lab/Site/Org: Hanford Site
Facility Name: Washington Closure General Areas
Subject/Title: Procedural Concern Involving Installation of HVAC Unit on a Mobile Trailer

Date/Time Discovered: 07/12/2012 12:00 (PTZ)

Date/Time Categorized: 07/19/2012 14:50 (PTZ)

Report Type: Notification/Final

Report Dates:

Notification	07/24/2012	17:29 (ETZ)
Initial Update	07/24/2012	17:29 (ETZ)
Latest Update	07/24/2012	17:29 (ETZ)
Final	07/24/2012	17:29 (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
Pacific Mobile

Occurrence Description: On July 12, 2012, a subcontractor four person crew arrived at the 618-10 Burial Ground Remediation Site to replace a Heating, Ventilation, and Air Conditioning (HVAC) unit on Mobile Office 6107 located on the Hanford Site.

The subcontractor electrician applied the appropriate lockout/tagout and verified zero energy. The electrician then terminated power at the local HVAC breaker box; air gapped the cable; wrapped tape around the end of the cable; and secured it outside of the breaker box. Following this, the electrician disconnected the electrical wires on the old HVAC unit and, along with the other three workers, replaced the unit. When the new unit was installed, the electrician reconnected the electrical wires at the unit, reconnected the power cable, removed his lock and tag, and energized the unit. The subcontractor involved in this process had been utilized by Washington Closure Hanford (WCH) to mobilize and demobilize work trailers for several years and the process used was in accordance with established procedures and practices.

A recent interpretation of the Hanford Site Wide Electrical Safety procedure is contrary to the previously acceptable practice utilized by the subcontractor. Following this event, discussions with the Department of Energy (DOE) Facility Representative concluded that the previous practice was no longer acceptable and that each of the other three non-electricians supporting the HVAC replacement should apply their individual lock out/tag out to the breaker box.

This event occurred on July 12, 2012, and was determined to be non-reportable to the Occurrence Reporting and Processing System (ORPS) database as a Group 2E(3) occurrence. Following the conclusion of a fact finding and subsequent meetings with DOE Richland Operations Office personnel on July 19, 2012, WCH agreed to report the incident under the Group 2E(3) criteria.

Cause Description:

Operating Conditions: N/A

Activity Category: Facility Decontamination/Decommissioning

Immediate Action(s): There were no immediate actions taken. A fact finding was conducted on July 16, 2012.

FM Evaluation:

DOE Facility Representative Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: 618-10 Project

Plant Area: 600 Area

System/Building/Equipment: Mobile Office 6107

Facility Function: Environmental Restoration Operations

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
 11G--Other - Subcontractor
 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On July 12, 2012, three subcontractor workers did not apply their individual Lockout/Tagout (LOTO) to a breaker box while replacing a Heating, Ventilation, and Air Conditioning (HVAC) unit on Mobile Office 6107, which is contrary to a recent interpretation of a Hanford Site Wide Electrical Safety procedure. The three workers were part of a four-person team to replace the HVAC unit. The fourth person on the team, an electrician, applied the appropriate LOTO, verified zero energy and replaced the unit with the other three workers. Discussions with the Facility Representative concluded that this long-standing LOTO practice of the subcontractor was no longer acceptable and that each of the other three non-electricians supporting the HVAC replacement should apply their individual LOTO to the breaker box.

Similar OR Report Number:

Facility Manager:

Name	Dan Plung
Phone	(509) 372-9952
Title	Director, Project Services

Originator:

Name	FOSTER, STEVEN JAMES
Phone	(509) 372-9722
Title	PRICE ANDERSON ACT COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/19/2012	15:15 (PTZ)	S. Trine	DOE FR
07/19/2012	16:05 (PTZ)	Duty Officer	ONC

Authorized Classifier(AC):

6)Report Number: [EM-RP--BNRP-RPPWTP-2012-0015](#) After 2003 Redesign

Secretarial Office: Environmental Management

Lab/Site/Org: Hanford Site

Facility Name: RPP Waste Treatment Plant

Subject/Title: Hazardous Energy Work Process Violation

Date/Time Discovered: 07/13/2012 14:45 (PTZ)

Date/Time Categorized: 07/13/2012 14:45 (PTZ)

Report Type: Notification/Final

Report Dates:

Notification	07/17/2012	15:12 (ETZ)
Initial Update	07/17/2012	15:12 (ETZ)
Latest Update	07/17/2012	15:12 (ETZ)
Final	07/17/2012	15:12 (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: A3B3C05 - Human Performance Less Than Adequate (LTA); Knowledge Based Error; Incorrect assumption that a correlation exists between two or more facts
 -->couplet - A4B1C01 - Management Problem; Management Methods Less Than Adequate (LTA); Management policy guidance / expectations not well-defined, understood or enforced

ISM: 4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On July 13, 2012, at 1030 hrs. an electrician performed work under a Lock Out / Tag Out (LO/TO), that he had not signed onto as an Authorized Employee. This violated WTP System and Equipment Lock Out/ Tag Out procedure (24590-WTP-GPP-SIND-008).

Two work crews, each with a respective Electrician and Pipefitter, were performing work on two mobile trailers (T-46 & T-3). The scope of the work packages included maintenance on the associated heating, ventilation, and air-conditioning (HVAC) units. A separate LOTO was used for each trailers HVAC unit. Each electrician would act as the (primary) worker for one of the trailers.

Once the primary worker for T-46 had completed her task, she requested the primary worker from T-3 to (verify) her work as completed.

The primary worker for trailer T-3 left his work area and proceeded to

verify his counterparts work on trailer T-46. During his inspection, he noticed that a bundle of wires needed to be relocated and asked if he should move them. The primary worker for T-46 told the primary worker from T-3 to relocate the wires. The primary worker from T-3 completed the task. However, because the primary worker from T-3 was not signed onto the LOTO for T-46, he violated procedure. (i.e., moving wires)

Cause Description:

A3B3C05 - Incorrect Assumption that a correlation existed between two or more facts.

Rationale:

The employee believed that the worked he performed was not related to the LO/TO work area.

A4B1C01 - Management expectations not well defined, understood or enforced.

Rationale:

Personnel exhibited a lack of understanding of existing policy and/or expectations.

Operating Conditions:

Construction

Activity Category:

Construction

Immediate Action(s):

The responsible supervisor paused work, notified Construction Management and the Occurrence Report Coordinator.

FM Evaluation:

Since the short form applied to an SC-4 will be turned in within two working days a revision of this report will capture the corrective actions at a later date. The corrective actions will be made available in our construction issues tracking database: 24590-WTP-PIER-MGT-12-0885.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

No

Division or Project:

Waste Treatment Plant

Plant Area:

600

System/Building/Equipment: Distribution

Facility Function:

Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned:

N/A

HQ Keywords:

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

HQ Summary:

On July 13, 2012, an electrician performed work under a Lock Out / Tag

Out (LOTO), that he had not signed onto as an Authorized Employee, which violated WTP System and Equipment LOTO procedure (24590-WTP-GPP-SIND-008). Two work crews, each with an electrician and pipefitter, were performing maintenance on the associated heating, ventilation, and air-conditioning units on two mobile trailers (T-46 & T-3) under a separate LOTO. Each electrician would act as the (primary) worker for one of the trailers. Once the primary worker for T-46 had completed her task, she asked the primary worker from T-3 to (verify) her work as completed. The primary worker for trailer T-3 left his work area and verified his counterparts work on trailer T-46. During his inspection, he noticed that a bundle of wires needed to be relocated and asked if he should move them. The primary worker for T-46 told the primary worker from T-3 to relocate the wires. The primary worker from T-3 completed the task; however, because the primary worker from T-3 was not signed onto the LOTO for T-46, he violated procedure when moving the wires. The responsible supervisor paused work.

Similar OR Report Number: 1. EM-RP--BNRP-RPPWTP-2011-0023

Facility Manager:

Name	Steve Overton
Phone	(509) 373-8268
Title	Manager of Construction

Originator:

Name	MEAGHER, THOMAS S.
Phone	(509) 373-8467
Title	SAFETY ASSURANCE

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/13/2012	14:45 (PTZ)	Paul Hirschman	DOE
07/13/2012	14:45 (PTZ)	Steve Overton	BNI
07/13/2012	15:03 (PTZ)	Terry Woodford	ONC

Authorized Classifier(AC):

7)Report Number:

[EM-SR--SRNS-SIPS-2012-0004](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Savannah River Site

Facility Name:

Site Infrastructure and Project Systems

Subject/Title:

Underground Electrical Conduit Contacted During Excavation

Date/Time Discovered:

07/31/2012 15:20 (ETZ)

Date/Time Categorized:

08/01/2012 10:00 (ETZ)

Report Type:

Notification

Report Dates:

Notification	08/03/2012	09:00 (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
Grade South

Occurrence Description:

A Savannah River Nuclear Solutions Subcontractor, Grade South, was performing excavation work with a backhoe to repair the sidewalk near Administrative Building 730-4B. While performing the excavation they contacted a conduit that was running under the sidewalk. The conduit was listed on the excavation map but not physically identified on the sidewalk. The conduit was damaged but the electrical lines within it remained intact. There were no personnel injuries resulting from this event.

Categorization of this event by Site Services management as an ORPs 2E(2) was delayed due to the time needed to evaluate the condition of the damaged conduit and wiring, review work document controls and consult with applicable SRNS SMEs. The lines within the damaged conduit were found to be de-energized at the time of the event, however, further evaluation revealed the lines fed overhead street lighting for the adjacent parking lot and would have been energized (480 V) once the lighting photo-cell closed due to darkness.

Cause Description:

Operating Conditions:

Normal

Activity Category:

Maintenance

Immediate Action(s):

A Time Out was taken by the subcontractor personnel and initial notifications were made to PMCS Safety, Site Services Maintenance management and the DOE-FR.

Electricians came out and tick traced the line and determined there was no voltage present. After the lines were determined to be de-energized they were visually inspected for damage.

The excavation area was barricaded and covered with plastic.

The Time Out will remain in effect until after completion of a fact finding meeting and implementation of return to work actions.

FM Evaluation:

The SRS Electrical Safety subject matter expert has calculated the electrical severity of this event using guidance developed by the EFCOG/DOE Electrical Safety Subgroup. The calculated severity for this event is 0. This event scores as follows: Electrical Hazard: 0 (No exposure to 480 volt circuit since insulation not damaged); Environmental Factor: 5 (damp); Shock Proximity Factor: 0 (insulated cables); Arc Flash: 0; Thermal Factor: 0; and Injury Factor: 1 (none). Electrical Severity = $0 * (1 + 5 + 0 + 0 + 0 + 0) * 1 = 0$.

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

The Facility Manager has reviewed and concurs with this notification report.

Initial ORPS Notification Report approved by: R. Gentry

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: Facility Manager
By When:

Division or Project:

M&O/ Site Services

Plant Area:

B-Area

System/Building/Equipment: Sidewalk near building 730-4B

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
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 July 31, 2012, a subcontractor backhoe operator struck and broke a conduit that ran under a sidewalk near Administrative Building 730-4B

while repairing a sidewalk, but did not damage the electrical conductors inside the conduit. The conduit was listed on the excavation map but not physically identified on the sidewalk. While the 480-volt lines within the damaged conduit were de-energized at the time of the event, they would be energized once the lighting photo-cell closed due to darkness. There were no personnel injuries resulting from this event.

Similar OR Report Number:

Facility Manager:

Name	BURKE, JEFFREY F.
Phone	(803) 952-7491
Title	Manager, Subcontracts Execution

Originator:

Name	LEWIS, JR., JOHN C
Phone	(803) 557-4378
Title	PROGRAM COMPLIANCE LEAD

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
08/01/2012	10:00 (ETZ)	Morrell Jr., O.K.	Maint
08/01/2012	10:15 (ETZ)	Gentry, R.E.	Site Ser
08/01/2012	10:20 (ETZ)	Fryar, S.	DOE-SR
08/01/2012	10:35 (ETZ)	Sumner, B.	SRSOC

Authorized Classifier(AC): HAAS, GARY M. Date: 08/02/2012

8)Report Number:

[EM-SR--SRR-WSALT-2012-0001](#) After 2003 Redesign

Secretarial Office:

Environmental Management

Lab/Site/Org:

Savannah River Site

Facility Name:

Saltstone Facility

Subject/Title:

Vendor Contact with Energized Electrical Wire

Date/Time Discovered:

07/24/2012 15:00 (ETZ)

Date/Time Categorized:

07/25/2012 12:50 (ETZ)

Report Type:

Notification

Report Dates:

Notification	07/26/2012	12:49 (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:

Subcontractor Involved:

Yes
I&M Industrials

Occurrence Description:

At approximately 1500 hours on Tuesday, 7/24, an I&M Industrial vendor was working on a Hycomp Compressor under a single point Lockout/Tagout at the Saltstone Facility. During troubleshooting activities, he thought he felt a tingling sensation as he brushed up against some wires. He checked for voltage and found none. As troubleshooting continued utilizing technical assistance, two power sources were identified within the work scope boundary that could have intermittently energized. A review of the DCS historical information on 7/25 confirmed that those sources intermittently were powered during this time frame.

At 0900 on 7/25, the Shift Operation Manager (SOM) was notified by the STR of the events that took place the previous day, which lead to the delay in reporting from when the event occurred. Following SOM notification, initial investigation by Management to ensure proper understanding of the facts and categorization of the event delayed reporting beyond the two hour categorization time.

The SRS Electrical SME has calculated the electrical severity of this event using guidance developed by the EFCOG/DOE Electrical Safety Subgroup. The calculated severity for this event is 330 (Medium Significance). The event scores as follows: Electrical Hazard: 10 (120V); Environmental Factor: 0; Shock Proximity Factor: 10; Arc Flash: 0; Thermal Factor: 0; PPE mitigations for shock (None - Voltage rated gloves were not used during exposure and contact with energized part), and Injury Factor: 3.

Electrical Severity = (Electrical Hazard Factor)*(1+Environmental Factor+Shock Proximity Factor+Arc Flash Proximity Factor+Thermal Proximity Factor)*Injury Factor = 10(1+0+10+0+0)*3 = 330.

Cause Description:

Operating Conditions:

Normal Field Operations

Activity Category:

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

Immediate Action(s):

All single point Lockouts/Tagouts (SPLT) are on hold for Facility Manager approval. All vendor work is on hold for Facility Manager approval.

FM Evaluation:

There were no injuries as a result of this incident with no facility impact.

DOE Facility Representative

Input:

DOE Program Manager

Input:

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

Division or Project: Saltstone

Plant Area: Z Area

System/Building/Equipment: 210-Z

Facility Function: Nuclear Waste Operations/Disposal

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)
 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock
 11G--Other - Subcontractor
 12C--EH Categories - Electrical Safety
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On July 24, 2012, while an I&M Industrial vendor was working on a Hycomp Compressor under a single point Lockout/Tagout at the Saltstone Facility, two power sources were identified within the work scope boundary that could have intermittently energized. During troubleshooting activities, the vendor thought he felt a tingling sensation as he brushed up against some wires. He checked for voltage and found none. A review of historical information confirmed that those sources intermittently were powered. There were no injuries as a result of this incident. All single point Lockouts/Tagouts and vendor work are on hold for Facility Manager approval.

Similar OR Report Number:

Facility Manager:

Name	BORDERS, MICHAEL N.
Phone	(803) 208-6022
Title	FACILITY MANAGER DWPF AND SALTSTONE

Originator:

Name	GREEN, MICHAEL J.
Phone	(803) 208-3171
Title	SRR SIRIM COORDINATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/25/2012	12:50 (ETZ)	Michael Borders	Fac Mgr
07/25/2012	12:50 (ETZ)	Bruce Long	Op Mgr
07/25/2012	13:30 (ETZ)	Steve Etheridge	DOE FR
07/25/2012	13:30 (ETZ)	Mark Sautman	DNFSB
07/25/2012	13:50 (ETZ)	David Mills	SERB
07/25/2012	13:50 (ETZ)	Michael Green	SIRIM
07/25/2012	13:50 (ETZ)	Talon Ainscough	S&H Mgr

Authorized Classifier(AC):

9)Report Number: [NA--KCSO-AS-KCP-2012-0004](#) After 2003 Redesign

Secretarial Office: National Nuclear Security Administration

Lab/Site/Org: Kansas City Plant

Facility Name: Kansas City Plant

Subject/Title: Mild Electric Shock Operating a Peristaltic Pump

Date/Time Discovered: 07/13/2012 07:30 (CTZ)

Date/Time Categorized: 07/13/2012 09:25 (CTZ)

Report Type: Notification

Report Dates:

Notification	07/16/2012	15:14 (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: 6) N/A (Not applicable to ISM Core Functions as determined by management review.)

Subcontractor Involved: No

Occurrence Description: On July 13, 2012, at approximately 0230 hours a Honeywell Federal Manufacturing and Technologies Kansas City (FM&T/KC)employee received an electric shock while operating a peristaltic pump powered with 110 volts AC. The FM&T/KC employee was operating the peristaltic pump to fill an environmental shaker reservoir with deionized water when the employee touched the pump and received a mild electrical shock. The pump was plugged into a 110 volt AC GFCI outlet. The employee had one hand on the shaker cabinet and one hand on the pump when the shock

occurred. The employee was evaluated by FM&T/KC Medical Care Services and no injury was identified. No personal protective equipment (PPE) is required for this job.

Cause Description:

Operating Conditions:

Does not apply.

Activity Category:

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

Immediate Action(s):

The employee unplugged the pump, removed it from service, and posted a sign on the equipment to alert others that there was an electrical problem with the equipment. A FM&T/KC electrician evaluated the pump and found the pump ground was defective with a loose wire at the plug. The GFCI was tested and was found to be not working.

HS&E responded to the area and initiated an investigation.

This report has been reviewed and was determined to be unclassified by:
Authorized Classifier: Clyde E. Hicks
Title: HS&E Administrator II
Date: July 13, 2012

FM Evaluation:

The employee's manager promptly notified other managers of the incident for their awareness, and to allow them to check their areas for similar issues. There were no visual signs of defects when looking at the plug on the peristaltic pump, however the manager decided to replace the pump and upgrade the whole system. The defective GFCI was replaced and tested on July 13, 2012.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Yes.

Required:

Before Further Operation? Yes

By Whom: Maint & HS&E

By When: 07/31/2012

Division or Project:

Honeywell Federal Mfg. & Technologies Kansas City

Plant Area:

Main Mfg. Building

System/Building/Equipment:

Peristaltic pump, GFCI

Facility Function:

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

Corrective Action 01:

Target Completion Date:07/16/2012	Actual Completion Date:07/13/2012
----------------------------------------------------	----------------------------------------------------

Replace defective Ground Fault Circuit Interrupt (GFCI) receptacle.

Lessons(s) Learned:

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

HQ Summary: On July 13, 2012, a Honeywell Federal Manufacturing and Technologies Kansas City employee received an electric shock while operating a peristaltic pump powered by 110 volts. The employee unplugged the pump, removed it from service, and posted a sign on it to alert others that there was an electrical problem with the pump. The employee was using the pump to fill an environmental shaker reservoir with deionized water when the employee touched the pump and received the mild electrical shock. The pump was plugged into a GFCI protected outlet. The employee was evaluated by Medical Care Services and no injury was identified. No personal protective equipment (PPE) is required for this job. An electrician evaluated the pump and found that the pump ground was defective with a loose wire at the plug. The GFCI was tested and was found not to be working. The defective GFCI was replaced and tested.

Similar OR Report Number:

Facility Manager:

Name	Kevin Allgeyer
Phone	(816) 997-5107
Title	Sr. Health Safety & Environment Manager

Originator:

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

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/13/2012	14:30 (CTZ)	Mike Roberts	KCSO

Authorized Classifier(AC): Clyde E. Hicks Date: 07/13/2012

10)Report Number: [NA--SS-SNL-NMFAC-2012-0004](#) 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: Contract Electrician Receives Shock While Contacting the Cover of a Transient Voltage Surge Suppressor at Building 858EF
Date/Time Discovered: 07/11/2012 15:00 (MTZ)
Date/Time Categorized: 07/12/2012 08:00 (MTZ)

Report Type: Notification

Report Dates:

Notification	07/13/2012	16:22 (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: 2) Analyze the Hazards

Subcontractor Involved: Yes
B&D Electric

Occurrence Description: At approximately 2:50pm on Wednesday, July 11, 2012, a contract electrician received a shock during an Arc Flash Study that was being conducted in 858EF SubFab. The panel was made up of a “door in door configuration” and was in an electrically safe condition and standard construction PPE (hard hat, safety glasses and safety shoes) were being utilized by the electrician at the time of the event.

The journeyman electrician touched with their right index and pinky finger the inner door and felt what was perceived as an electrical shock, this shock occurred to the same hand.

The employee was taken to medical and released to full duty.

Panel BPH2 does not show any indication of electrical damage. A Square D, Transient Voltage Surge Suppressor (TVSS) at building 858EF is part of the circuit configuration.

The TVSS was de-energized and the electrician opened the panelboard cover for a visual inspection. Upon opening the cover it was noticed that the grounding lug on the TVSS was missing the grounding conductor to the panelboard ground bar. The electrician then took a resistance measurement from the TVSS grounding lug to the TVSS panel cover and recorded .5 ohms and from the TVSS grounding lug to the panelboard frame we measure infinite resistance.

Observing the half-wave voltage waveform on the TVSS ground leads us to believe that the metal oxide varistor (MOV) in the TVSS have failed and are trying to shunt current to ground. Since the TVSS is electrically isolated from the panelboard, with the missing grounding wire, the TVSS

panel cover is energized. The improper installation of the TVSS was installed during the MESA project.

Immediate actions:

The area was placed in a safe condition and was barricaded with Red Danger Tape.

Notifications were conducted.

Investigation was initiated.

Maintenance electrical and Facilities ESH responded and received reading of 160 volts DC and 60 volts AC on the panel. The circuit was administratively locked and tagged out.

Cause Description:

Critique/Fact Finding Performed: 7/12/2012

Operating Conditions:

Normal

Activity Category:

Facility/System/Equipment Testing

Immediate Action(s):

The work area was placed in a safe condition

Notifications were conducted

Investigation was initiated

Employee was taken to medical

FM Evaluation:

EOC#26030

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is

Yes.

Required:

Before Further Operation? No

By Whom:

By When: 08/26/2012

Division or Project:

4820/Arc Flash Study

Plant Area:

Tech Area I

System/Building/Equipment: Electrical Panel BPH2/Bldg. 858EF/Basement

Facility Function:

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

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

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

07D--Electrical Systems - Electrical Wiring

08A--OSHA Reportable/Industrial Hygiene - Electrical Shock

11G--Other - Subcontractor
 12C--EH Categories - Electrical Safety
 14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On July 11, 2012, a contract electrician received a shock during an Arc Flash Study that was being conducted in 858EF SubFab. The panel was made up of a “door in door configuration” and was in an electrically safe condition and standard construction PPE (hard hat, safety glasses and safety shoes) were being used by the electrician at the time of the event. The journeyman electrician had touched their right index and pinky finger to the inner door and felt what was perceived as an electrical shock, which occurred to the same hand. The electrician was taken to medical and released to full duty. A Square D, Transient Voltage Surge Suppressor, which is part of the circuit configuration, was improperly installed (missing ground wire) resulting in the cover being energized. The circuit was administratively locked and tagged out.

Similar OR Report Number:

Facility Manager:

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

Originator:

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

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/11/2012	15:00 (MTZ)	Art Ratzel	4800
07/11/2012	15:00 (MTZ)	Steve Fattor	4840
07/11/2012	15:00 (MTZ)	Stan Harrison	4870
07/11/2012	15:00 (MTZ)	Anthony Chavez	4843
07/11/2012	15:00 (MTZ)	EOC	4236
07/11/2012	16:00 (MTZ)	Debbie Garcia-Sanchez	DOE/SSO

Authorized Classifier(AC): Dwight Stockham Date: 07/13/2012

11)Report Number: [NA--YSO-BWXT-Y12SITE-2012-0031](#) After 2003 Redesign
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Y12 National Security Complex
Facility Name: Y-12 Site
Subject/Title: Signature Omitted from LOTO Permit

Date/Time Discovered: 07/02/2012 12:35 (ETZ)

Date/Time Categorized: 07/02/2012 12:45 (ETZ)

Report Type: Notification/Final

Report Dates:	Notification	07/03/2012	13:54 (ETZ)
	Initial Update	07/03/2012	13:54 (ETZ)
	Latest Update	07/03/2012	13:54 (ETZ)
	Final	07/03/2012	13:54 (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: No

Occurrence Description: A signature omission was discovered during a review of a Lockout/Tagout (LO/TO) dated 02/28/2012 that was put in place prior to the May 8, 2012, site-wide LO/TO stand-down. The omission was discovered during the required walk down and review that are a part of the current LO/TO resumption activities. The Issuing Authority (IA) had neglected to sign the permit approval line 4d indicating final approval before the Service Supervisor (SS) signed the next section accepting the LO/TO. No personnel were exposed to hazardous energy as a result of the administrative error. The LO/TO was already in suspension and will remain suspended pending verification of the associated isolation points and correction of the administrative error.

NOTE: The Y-12 Site is currently in the process of resuming work associated with LO/TO after a May 8, 2012, self-imposed site-wide stand-down. Response activities to date have included the reduction of the number of active Issuing Authorities (IA), providing updated IA training, and requiring a Senior Review Board review and approval of each LO/TO prior to performing any associated work. Each existing LO/TO that was in place prior to the stand-down is being reviewed by teams that include personnel independent from the initial application of the LO/TO to determine if the LO/TO is adequate to allow work to resume. It was during one of these review activities that this administrative error was identified.

Cause Description:

Operating Conditions: The site is reviewing all LO/TOs implemented prior to May 8, 2012, for adequacy.

Activity Category: Maintenance

Immediate Action(s):

- FI&S Management was notified of the discovery
- The LO/TO was already in suspension.

- The Senior Review Board approved resumption of the activity under the LO/TO pending verification of the isolation points and correction of the administrative error.

FM Evaluation:

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: FI&S

Plant Area: Protected Area

System/Building/Equipment: 9204-2

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

HQ Summary: On July 2, 2012, a signature omission was discovered during a review of a Lockout Tagout (LOTO) dated February 28, that was put in place prior to the May 8, site-wide LOTO stand-down. The omission was discovered during the required walk down and review that are a part of the current LOTO resumption activities. The Issuing Authority had neglected to sign the permit approval line indicating final approval before the Service Supervisor signed the next section accepting the LOTO. No personnel were exposed to hazardous energy as a result of the administrative error. The LOTO was already in suspension and will remain suspended pending verification of the associated isolation points and correction of the administrative error. Management was notified of the discovery.

Similar OR Report Number: 1. NA--YSO-BWXT-Y12SITE-2012-0008

Facility Manager:

Name	M. W. McFarland
Phone	(865) 574-5801
Title	FI&S Lockout/Tagout Manager

Originator:

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

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/02/2012	12:45 (ETZ)	R. S. Underwood	FI&S Dir
07/02/2012	12:45 (ETZ)	S. K. Little	FI&S VP
07/02/2012	14:05 (ETZ)	R. T. Morris	PSS
07/02/2012	14:10 (ETZ)	A. S. Dull	NNSA
07/02/2012	14:20 (ETZ)	Duty-FR	NNSA

Authorized Classifier(AC): C. J. Schermerhorn Date: 07/03/2012

12)Report Number: [SC--BSO-LBL-ALS-2012-0001](#) **After 2003 Redesign**
Secretarial Office: Science
Lab/Site/Org: Lawrence Berkeley National Laboratory
Facility Name: Advanced Light Source Division
Subject/Title: ALS Staff Felt Tingling While Setting Up Experiment - No Injuries
Date/Time Discovered: 07/12/2012 10:30 (PTZ)
Date/Time Categorized: 07/12/2012 12:10 (PTZ)
Report Type: Notification

Report Dates:

Notification	07/13/2012	19:44 (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: 2) Analyze the Hazards
 5) Provide Feedback and Continuous Improvement

Subcontractor Involved: No

Occurrence Description: At around 1030 hours on 07/12/2012, an Advanced Light Source (ALS) staff felt a minor tingling while connecting a sample heating apparatus. The staff did not sustain any injury.

A beamline user had brought a heating equipment from the University of California, Berkeley campus that day to be used in an experiment. An ALS staff was setting up the heating equipment in Building 6, room 1000,

beamline 7.3.3 hutch, when he felt a tingling sensation in his left hand. The staff contacted a coworker who unplugged the apparatus and together they brought it to the ALS Electronics Maintenance (EM) Shop where the Shop personnel contacted the ALS safety manager and the Lab's electrical safety manager.

The experimental apparatus consisted of two parts: a power supply/temperature controller and the actual sample heater. The controller was a standard off-the-shelf item that had been inspected and approved per LBNL requirements. The heater element was assembled by the user and consisted of a heated copper block designed to hold samples in the beamline. The heating elements inside the copper block were spliced to a 120 VAC standard power cord, which was then plugged into a temperature controller. As such the voltage to the heating elements is expected to vary between 0 and 79 VAC depending on the controller output. Testing revealed an inadequate splicing of the heating element to the power cord, which then shorted to the copper block. In addition, the equipment ground conductor was terminated in a location inadequate for proper protection, as there was no ground path between the ground conductor and the copper block. After undergoing repairs, proper ground connection, and inspection testing, the equipment was returned to service.

As a precaution, the ALS staff went to the Lab's Health Services to be examined; he has since returned to work without restrictions.

Cause Description:

Operating Conditions:

Indoors, lighted, dry

Activity Category:

Research

Immediate Action(s):

- The ALS staff unplugged the equipment and brought it to EM Shop for evaluation.

- The ALS staff went to the Lab's Health Services for precautionary examination.

FM Evaluation:

- The sample heating equipment was not NRTL (Nationally Recognized Testing Laboratory) certified, but had been inspected as part of the ALS experiment review program. This inspection procedure and the staff who administer it have not yet been incorporated in the LBNL Electrical Equipment Inspection Program (EEIP). The equipment was inspected and tested with satisfactory results after the post-incident repairs.

- The temperature controller was not NRTL certified, but had been tested, inspected and approved under the Lab's EEIP certificate. It was retested after the incident with satisfactory results.

- The temperature controller has a standard PID (proportional-integral-derivative) loop for temperature regulation. As such, the voltage output

varies based on measured temperature, set point temperature, and the time integral that the measured temperature is off the set point. The voltage is expected to be high at startup, once at the set point, the voltage will drop to what is necessary to overcome the steady state heat losses. The equipment has the maximum voltage output of approximately 80 VAC. As a result, it is unclear what the output voltage was at the time of the incident. Even though it is likely that the output was below 50 VAC, ALS management has decided to be conservative in its categorization and assumed the output was >50 VAC when the staff felt the tingling. The Electric Severity Score for 15-50 VAC and >50 VAC are 14 and 140 respectively.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: ALS
By When:

Division or Project:

Advanced Light Source (ALS)

Plant Area:

B6 R1000

System/Building/Equipment: Building 6 Room 1000 7.3.3 hutch

Facility Function:

Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation
07D--Electrical Systems - Electrical Wiring
08A--OSHA Reportable/Industrial Hygiene - Electrical Shock
12C--EH Categories - Electrical Safety
14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On July 12, 2012, an Advanced Light Source (ALS) staff member felt a minor tingling while connecting a sample heating apparatus. The staff member did not sustain any injury; however, as a precaution, he went to the Lab's Health Services to be examined and returned to work without restrictions. The heater element was assembled by the user and consisted of a heated copper block designed to hold samples in the beamline. The heating elements inside the copper block were spliced to a 120 VAC standard power cord, which was then plugged into a temperature controller. Testing revealed an inadequate splicing of the heating element to the power cord, which then shorted to the copper block. In addition, the equipment ground conductor was terminated in a location inadequate for proper protection, as there was no ground path between the ground conductor and the copper block. After undergoing repairs, proper ground connection, and inspection testing, the equipment was returned to service.

Similar OR Report Number:

Facility Manager:

Name	Roger Falcone
Phone	(510) 486-6692
Title	Division Director

Originator:

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

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/12/2012	13:38 (PTZ)	Mary Gross	BSO
07/12/2012	13:38 (PTZ)	Kevin Hartnett	BSO
07/12/2012	13:38 (PTZ)	Julie Henderson	BSO

Authorized Classifier(AC):**13)Report Number:**[SC--BSO-LBL-EHS-2012-0003](#) After 2003 Redesign**Secretarial Office:**

Science

Lab/Site/Org:

Lawrence Berkeley National Laboratory

Facility Name:

Environment, Health, & Safety

Subject/Title:

100 v Communication Cable Cut at B66 Without Proper LOTO - No Exposure, No Injuries

Date/Time Discovered:

07/31/2012 10:00 (PTZ)

Date/Time Categorized:

07/31/2012 15:28 (PTZ)

Report Type:

Notification/Final

Report Dates:

Notification	08/02/2012	18:49 (ETZ)
Initial Update	08/02/2012	18:49 (ETZ)
Latest Update	08/02/2012	18:49 (ETZ)
Final	08/02/2012	18:49 (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
JEOL Ltd.**Occurrence Description:**

On 07/31/2012 at approximately 1000 hours, a Facilities Division project

manager discovered that a JEOL, Ltd subcontractor technician had cut a communication cable connecting a water cooling chiller located in Building 66 room 230 to a TEM microscope in room 233. The technician had de-energized both the microscope and the chiller via the microscope's internal interlocks. The technician had thought the cable was low voltage when it was in fact a 100 volt cable. The circuit breaker was not locked out, constituting a lock out/tag out violation. There were no hazardous energy exposure nor injuries.

The work was part of a Materials Sciences Division (MSD) project to renovate the existing laboratory space and to move the chiller to another location. Facilities was managing the overall project for MSD, but the responsibility for the vendor's work was not clearly established and communicated at the beginning of this project. It was not clear whether the Facilities or the MSD personnel were responsible for managing the safety of the vendor's work.

On 07/23/2012, Facilities project manager notified subcontractor JEOL that the new chiller location had been prepared and was ready for chiller move and installation. MSD personnel was informed about this notification but did not know the specific date of the relocation work. As a result, no pre-job briefing happened. Upon further investigation, it was also determined that there was no valid work authorization (WA) for this job. There was not a Subcontractor Job Hazard Analysis (SJHA) in place; both divisions' personnel thought the other division was responsible for filling out the SJHA. Had either the pre-job briefing happened or the SJHA filled out and reviewed, the hazards associated with the work and the appropriate controls, including LOTO permit requirement, might have been identified.

Cause Description:

Operating Conditions:

Indoors, lighted, dry

Activity Category:

Construction

Immediate Action(s):

- The LBNL Facilities project manager stopped all activities related to chiller relocation and notified Facilities and MSD Management.

- LBNL electricians responded and performed LOTO at the disconnect feeding the equipment.

- Facilities safety personnel held meetings evaluating and addressing the event.

FM Evaluation:

- Facilities and environment, Health, and Safety divisions will conduct further reviews with the intent to develop corrective actions to establish clear roles and responsibilities for project and SJHA management.

- MSD personnel is in the process of filling out an SJHA for the chiller

relocation work.

- Job will resume after SJHA review, and after appropriate permit and controls are in place. LBNL Facilities electrician will make the final connection of the communication cable.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Environmental, Health & Safety Division

Plant Area: B66R230

System/Building/Equipment: Building 66 Room 230 Chiller and Room 233 Microscope

Facility Function: Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance
01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)
01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other)
01P--Inadequate Conduct of Operations - Inadequate Oral Communication
01R--Inadequate Conduct of Operations - Management issues
07D--Electrical Systems - Electrical Wiring
08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
11G--Other - Subcontractor
12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
14D--Quality Assurance - Documents and Records Deficiency
14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency

HQ Summary: On July 31, 2012, a subcontractor technician cut a 100-volt communication cable connecting a water cooling chiller located in Building 66 Room 230 to a Transmission Electron Microscope in Room 233 without establishing a lockout/tagout of the associated circuit breaker, because the technician thought the cable was a low voltage cable. The technician had de-energized both the microscope and the chiller via the microscope's internal interlocks, but did not establish a lockout/tagout of the circuit breaker. An investigation also revealed that responsibility for the technician's work was not clearly established between Materials

Sciences Division and Facilities. As a result, there was no valid work authorization or Subcontractor Job Hazard Analysis in place and no pre-job briefing was performed. There were no hazardous energy exposures or injuries.

Similar OR Report Number:

Facility Manager:

Name	Douglas Fleming
Phone	(510) 486-5118
Title	Division Director

Originator:

Name	PETERSON, ANDREW FITZGERA
Phone	(510) 495-8128
Title	EHS ASSURANCE MANAGER - EH&S DIVISIO

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
07/31/2012	16:35 (PTZ)	Mary Gross	BSO
07/31/2012	16:35 (PTZ)	Kevin Hartnett	BSO

Authorized Classifier(AC):

14)Report Number:

[SC--BSO-LBL-LSD-2012-0002](#) After 2003 Redesign

Secretarial Office:

Science

Lab/Site/Org:

Lawrence Berkeley National Laboratory

Facility Name:

Life Sciences Division

Subject/Title:

Freezer Side Panel Removed Posing Potential Electrical Hazard - No Injuries

Date/Time Discovered:

07/25/2012 11:00 (PTZ)

Date/Time Categorized:

07/26/2012 15:25 (PTZ)

Report Type:

Notification

Report Dates:

Notification	07/30/2012	19:08 (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
AL-TAR

Occurrence Description: At around 1100 hours on 07/25/2012, an LBNL electrician observed a subcontractor equipment service technician working in Building 84, room 0165 on an ultralow temperature freezer. The side panel of the ultralow freezer was removed, but the freezer was still plugged into a 208 v outlet. The AL-TAR technician had removed the side panel to access a circuit board as part of the diagnostic checks on the freezer to determine why the freezer would not go below -50 degrees Celsius (it has a factory setpoint of -80-degrees).

The LBNL electrician questioned the technician about the panel removal. The technician indicated that the circuit board he was performing work on was 20 volt, hence his exposure was under 50 volt. The LBNL electrician ordered the technician to stop work because with the panel open and other parts of the freezer exposed, the electric hazard had a potential to be higher than that of the board that the technician was working on. The technician reported the work stoppage to the Life Sciences Division (LSD) researcher who had requested the service. The researcher immediately contacted the division's safety manager about the event. The safety manager began an investigation to determine the level of potential hazard exposure with the opened panel.

On 07/26/2012, an LBNL electrical safety subject matter expert (SME) determined that the potential exposure level was 208 v which exceeded the 50-volt threshold for the requirement of an EEWP (Energized Electrical Work Permit).

Cause Description:

Operating Conditions: Indoors, Lighted, Dry

Activity Category: Maintenance

Immediate Action(s): - The LBNL electrician ordered the subcontractor technician to stop work.

- The LSD researcher contacted the division safety manager.

FM Evaluation: - The SJHA (Subcontractor Job Hazard Analysis) indicated that the work does not expose the worker to potential electrical hazards of 50 or more volts.

DOE Facility Representative

Input:

DOE Program Manager

Input:

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

Division or Project: Life Sciences Division

Plant Area: B84R0165

System/Building/Equipment: Building 84 Room 0165 Ultralow Temperature Freezer

Facility Function: Laboratory - Research & Development

Corrective Action:

Lessons(s) Learned:

HQ Keywords: 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
 01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance
 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical)
 01R--Inadequate Conduct of Operations - Management issues
 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
 11G--Other - Subcontractor
 12C--EH Categories - Electrical Safety
 14G--Quality Assurance - Procurement Deficiency

HQ Summary: On July 25, 2012, an LBNL electrician ordered a subcontractor equipment service technician to stop working in Building 84, Room 0165 on an ultralow temperature freezer with the side panel removed since the work possibly exposed the technician to 208 volts. The LBNL electrician questioned the technician about the technician's possible exposure to 208 volts since the refrigerator was plugged in, even though the technician stated the circuit board he was troubleshooting was only 20 volts. The LBNL electrician ordered the technician to stop work. An electrical safety subject matter expert determined that the potential exposure was 208 volts, which exceeds the threshold for an energized electrical work permit and is contrary to the subcontractor job hazard analysis.

Similar OR Report Number:

Facility Manager:

Name	Gary Karpen
Phone	(510) 495-2438
Title	Division Director

Originator:

Name	PETERSON, ANDREW FITZGERA
Phone	(510) 495-8128
Title	EHS ASSURANCE MANAGER - EH&S DIVISIO

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
07/26/2012	15:30 (PTZ)	Mary Gross	BSO
07/26/2012	15:30 (PTZ)	Julie Henderson	BSO
07/26/2012	15:30 (PTZ)	Kevin Hartnett	BSO

Authorized Classifier(AC):

15)Report Number: [SC-ORO--ORNL-X10BOPLANT-2012-0004](#) After 2003 Redesign

Secretarial Office: Science

Lab/Site/Org: Oak Ridge National Laboratory

Facility Name: X-10 General Op. & Landlord Activity

Subject/Title: Energized Cable Damaged Causing Circuit Breaker Trip

Date/Time Discovered: 07/25/2012 10:00 (ETZ)

Date/Time Categorized: 07/25/2012 12:00 (ETZ)

Report Type: Notification

Report Dates:

Notification	07/27/2012	18:02 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3

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

Cause Codes:

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

Subcontractor Involved: No

Occurrence Description: On July 25, 2012, work to install HVAC ductwork was being performed in office trailer 7965D. The scope of work involved the removal of part of a wall constructed of studs and drywall board. A work order with a defined scope of work was approved for this activity. A small opening in the drywall was initially removed to enable a visual inspection for electrical utilities prior to cutting the needed larger opening.

At approximately 1000 hours, in the process of making the last of four wall cuts with a battery-powered reciprocating saw, the blade contacted an energized metal-clad flexible cable. A circuit breaker tripped as designed,

lighting was lost, and the work was immediately stopped. The Facility Manager was contacted, who subsequently notified appropriate ORNL management and the Laboratory Shift Superintendent (LSS).

There was no personnel contact with electrical power or injuries as a result of this activity.

The event was categorized by Facility Management and the LSS as a 2E(2) hazardous energy control occurrence (i.e., discovery of an uncontrolled electrical hazardous energy source, e. g., live electrical power circuit, etc.).

Cause Description:

Operating Conditions:

Normal

Activity Category:

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

Immediate Action(s):

Work was stopped and ORNL management was notified of the event. The cable was placed in a safe configuration and the circuit was locked and tagged out.

The work activity remains on-hold until corrective actions can be developed and implemented.

A critique was conducted at 1400 hours on July 25, 2012.

FM Evaluation:

ORNL management is evaluating the circumstances around the event, will implement actions as appropriate, and share any resulting lessons learned.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required:

Yes.
Before Further Operation? No
By Whom: Allen Smith
By When: 09/07/2012

Division or Project:

Nonreactor Nuclear Facilities Division

Plant Area:

7965D

System/Building/Equipment:

7965D

Facility Function:

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

Corrective Action:

Lessons(s) Learned:

HQ Keywords:

01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
01Q--Inadequate Conduct of Operations - Personnel error

07D--Electrical Systems - Electrical Wiring
 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
 12C--EH Categories - Electrical Safety
 14E--Quality Assurance - Work Process Deficiency

HQ Summary:

On July 25, 2012, the blade of a battery-powered reciprocating saw operated by a worker contacted an energized metal-clad flexible cable, causing a circuit breaker to trip and a loss of lighting while installing HVAC ductwork in office trailer 7965D. The incident occurred while making the last of four drywall cuts after a small opening was initially made to enable a visual inspection for electrical utilities prior to cutting the needed larger openings. There was no personnel contact with electrical power or injuries as a result of this activity.

Similar OR Report Number:

Facility Manager:

Name	Allen Smith
Phone	(865) 576-7953
Title	Nuclear Facility 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
07/25/2012	11:00 (ETZ)	Gary Clifton	DOE FR
07/25/2012	12:00 (ETZ)	Lab Shift Superintendent	ORNL LSS
07/25/2012	13:02 (ETZ)	Michele Branton	DOE ORNL
07/25/2012	13:02 (ETZ)	Johnny Moore	DOE ORNL

Authorized Classifier(AC):

16)Report Number:

[SC-ORO--ORNL-X10EAST-2012-0004](#) After 2003 Redesign

Secretarial Office:

Science

Lab/Site/Org:

Oak Ridge National Laboratory

Facility Name:

ORNL East Complex

Subject/Title:

Failure to Follow Prescribed Hazardous Energy Control Process

Date/Time Discovered:

07/23/2012 10:20 (ETZ)

Date/Time Categorized:

07/23/2012 12:45 (ETZ)

Report Type:

Notification/Final

Report Dates:

Notification	07/25/2012	21:02 (ETZ)
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Initial Update	07/25/2012	21:02 (ETZ)
Latest Update	07/25/2012	21:02 (ETZ)
Final	07/25/2012	21:02 (ETZ)

Significance Category: 4

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

Cause Codes:

ISM: 4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On July 23, 2012, a staff member (1) applied a lock to a breaker in a 480 volt power panel. The staff member (1) had previously removed the lock to begin aligning with revised administrative permitting requirements. The breaker was already in the "off" position and no equipment configuration changes were made after the lock was removed.

The power cabinet fed by the breaker has never been hooked up to 480 V service. The power cabinet had been set in place and tested at 120 volts two years ago. The power cabinet is now being evaluated for research capabilities to see what modifications would be required to put the power cabinet into service.

After the lock had been applied, but before the zero energy verification had been completed, a door on a disconnect box on the power cabinet downstream of the breaker was opened by staff member (2). Failure of the staff member (2) to have the circuit tested for zero energy prior to opening the door constituted a violation of the site hazardous energy control process. As a result, the proper personal protective equipment was not worn when the door to the disconnect was opened. Resulting zero energy check confirmed that the circuit was not energized. Both staff members (1) and (2) were properly trained for their assigned job duties

There were no injuries to personnel, or environmental, health and safety impacts as a result of this event.

Cause Description:

Operating Conditions: Normal

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

Immediate Action(s): A craft electrician was contacted, and verified that the 480 volt circuit was in a zero energy condition.

A critique was held on July 24, 2012.

FM Evaluation: ORNL management is evaluating the circumstances around the event, will

implement actions as appropriate, and share any resulting lessons learned.

DOE Facility Representative

Input:

DOE Program Manager

Input:

Further Evaluation is Required: No

Division or Project: Fusion Energy Division

Plant Area: Building 7625

System/Building/Equipment: 7625

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

Corrective Action:

Lessons(s) Learned:

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

HQ Summary: On July 23, 2012, a violation of the site hazardous energy control process occurred when a door on a disconnect box on the power cabinet downstream of a breaker in a 480 volt power panel was opened by staff member after a lock had been applied, but before the zero energy verification had been completed. The proper personal protective equipment was not worn when the door was opened. The resulting zero energy check confirmed that the circuit was not energized. A critique was held.

Similar OR Report Number:

Facility Manager:

Name	Stan Milora
Phone	(865) 574-0988
Title	Fusion Energy 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
07/23/2012	11:56 (ETZ)	Lab Shift Superintendent	ORNL LSS

07/23/2012	14:01 (ETZ)	Johnny Moore	DOE ORNL
07/23/2012	14:01 (ETZ)	Michele Branton	DOE ORNL

Authorized Classifier(AC):

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