Office of Health, Safety and Security

Monthly Analysis of Electrical Safety Occurrences

September 2013

Purpose

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

Key Observations

The number of electrical safety occurrences in September decreased from twelve in August to eleven. There were two reported electrical shocks, two electrical intrusion occurrences, and six lockout/tagout occurrences. In September, workers identified electrical hazards 73 percent of the time, which is an increase in hazards identification from 42 percent in August.

Electrical Safety Occurrences

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

Electrical Shock

There were two reported electrical shocks in the month of September which is the same as in August. These occurrences are summarized below.

1. An electrician was exposed to an inadvertent electrical discharge while using a holiday test instrument during the installation of a coated waste transfer line. The test instrument operates on direct current voltage at an extremely low current and gives an audible and visual indication if a flaw is detected in the surface of the coating on the pipe. During the test to determine the position of the test instrument, the electrician positioned a non-insulated inspection mirror too close to the detector probe causing an arc between the probe and mirror. The electrician experienced a sharp pain in his palm and wrist on the hand that was holding the mirror. The electrician was evaluated and returned to work with no restrictions. The holiday tester being used was a D. E. Stearns Company Model 10/20

Regulated Voltage Holiday Detector. The manufacturer's operating instructions did not include any safety precautions or warnings.

2. A health physics technician inadvertently touched an exposed electrical circuit while preparing for a pneumatic transfer to a glove box. The technician was installing a radiological meter probe to the transfer piping when his left arm touched an electrical switch associated with the pneumatic transfer system circuitry resulting in a shock of 120 volts. The exposed electrical circuitry was not readily visible and was in use for at least the past 25 years without any known alteration that may have resulted in this condition.

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

Figure 1 – Three-Year Trend of Electrical Shocks

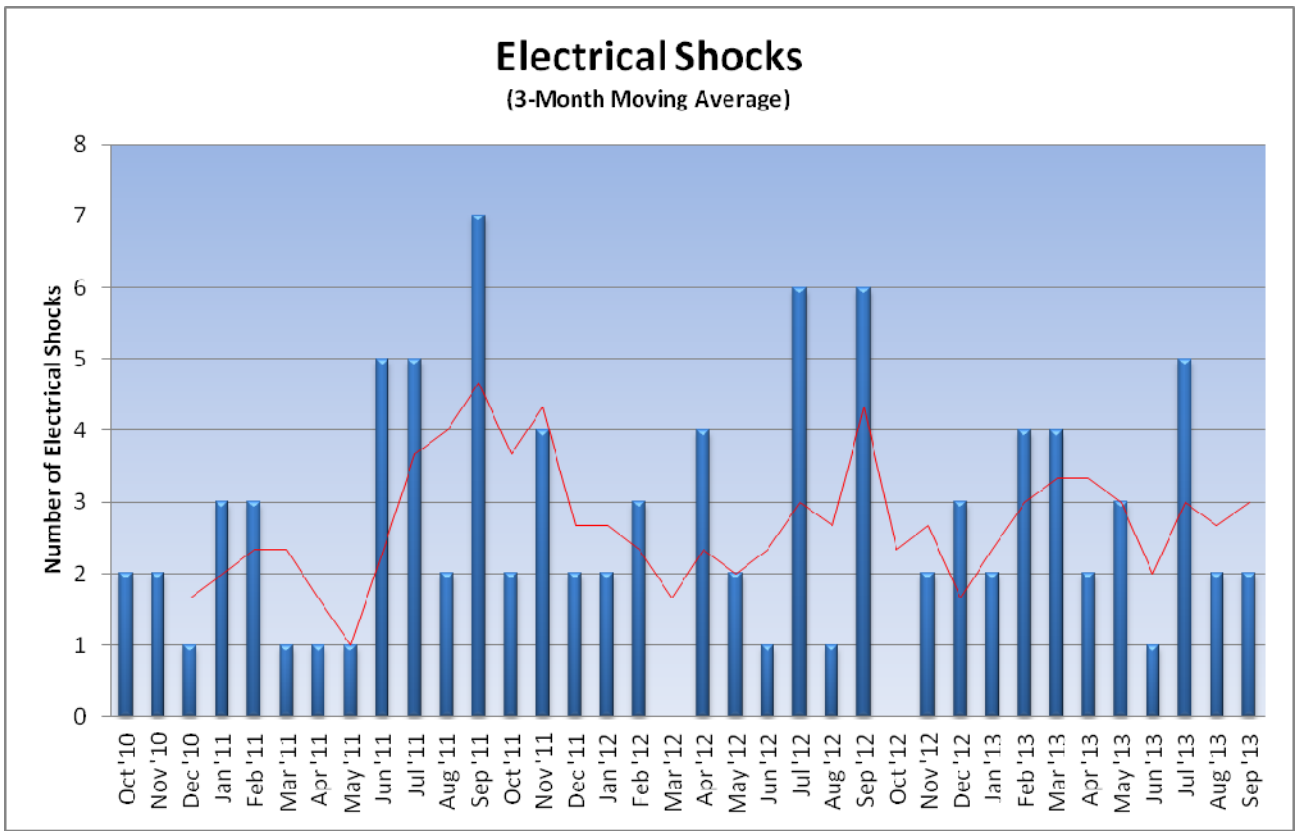


Figure 2 shows electrical shocks by worker type through September 2013. The number of shocks involving electrical workers slowly increased through 2012 and then dropped in 2013. Presently, this is the lowest year since 2008. Shocks involving non-electrical workers decreased after 2011. Since 2008, the majority of shocks (about 74 percent) involve non-electrical workers. So far for in 2013, that percentage is 83.

Figure 2 - Electrical Shock by Worker Type

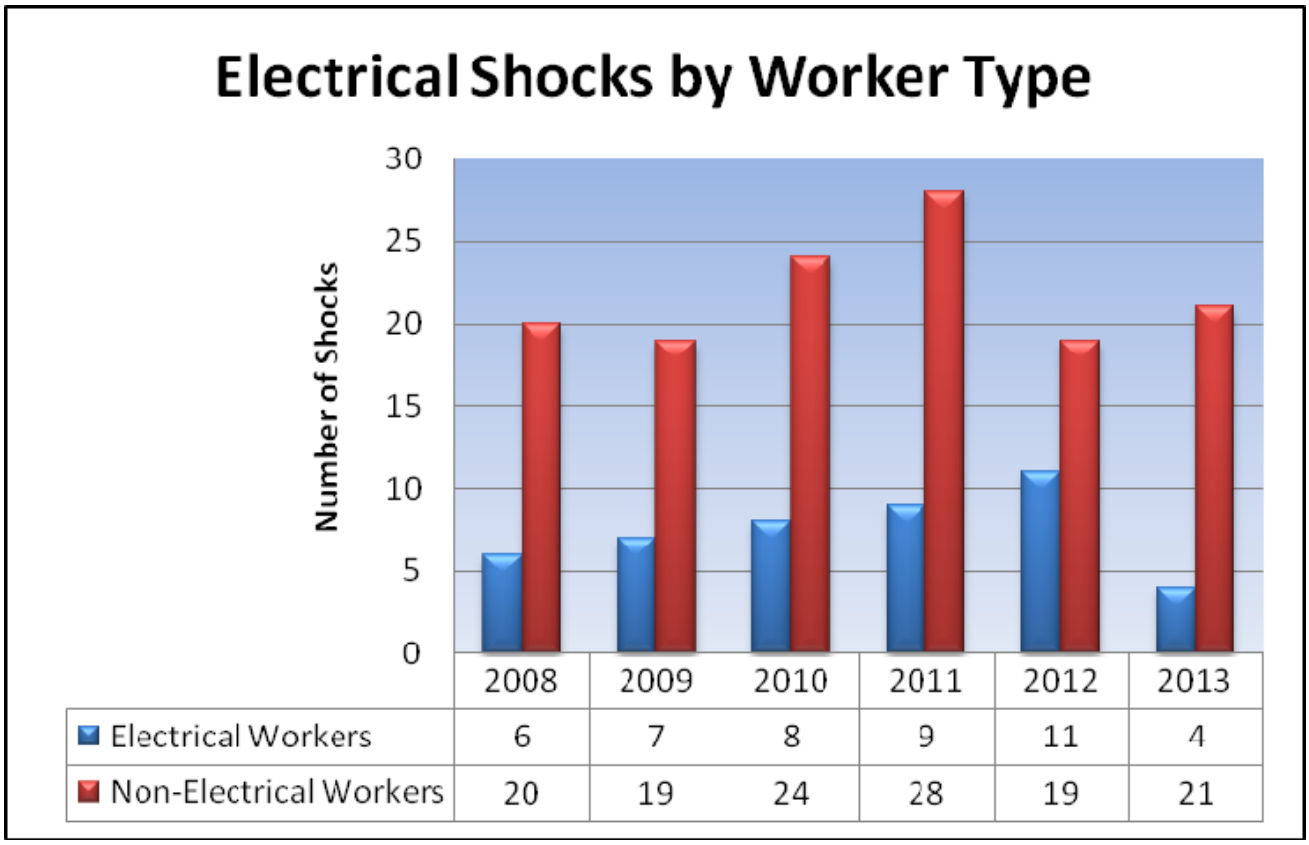
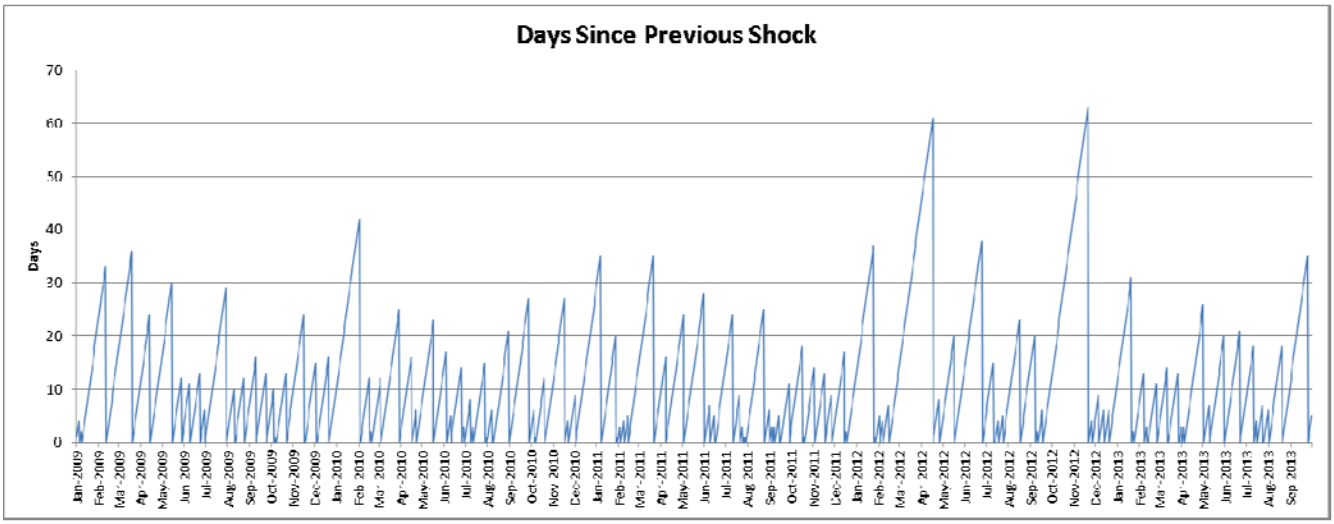


Figure 3 shows the number of days since the previous electrical shock for the DOE complex. The longest interval was 63 days (November 20, 2012) and the present interval is 5 days as of September 30.

Figure 3 - Days since Previous Shock



Electrical Intrusion

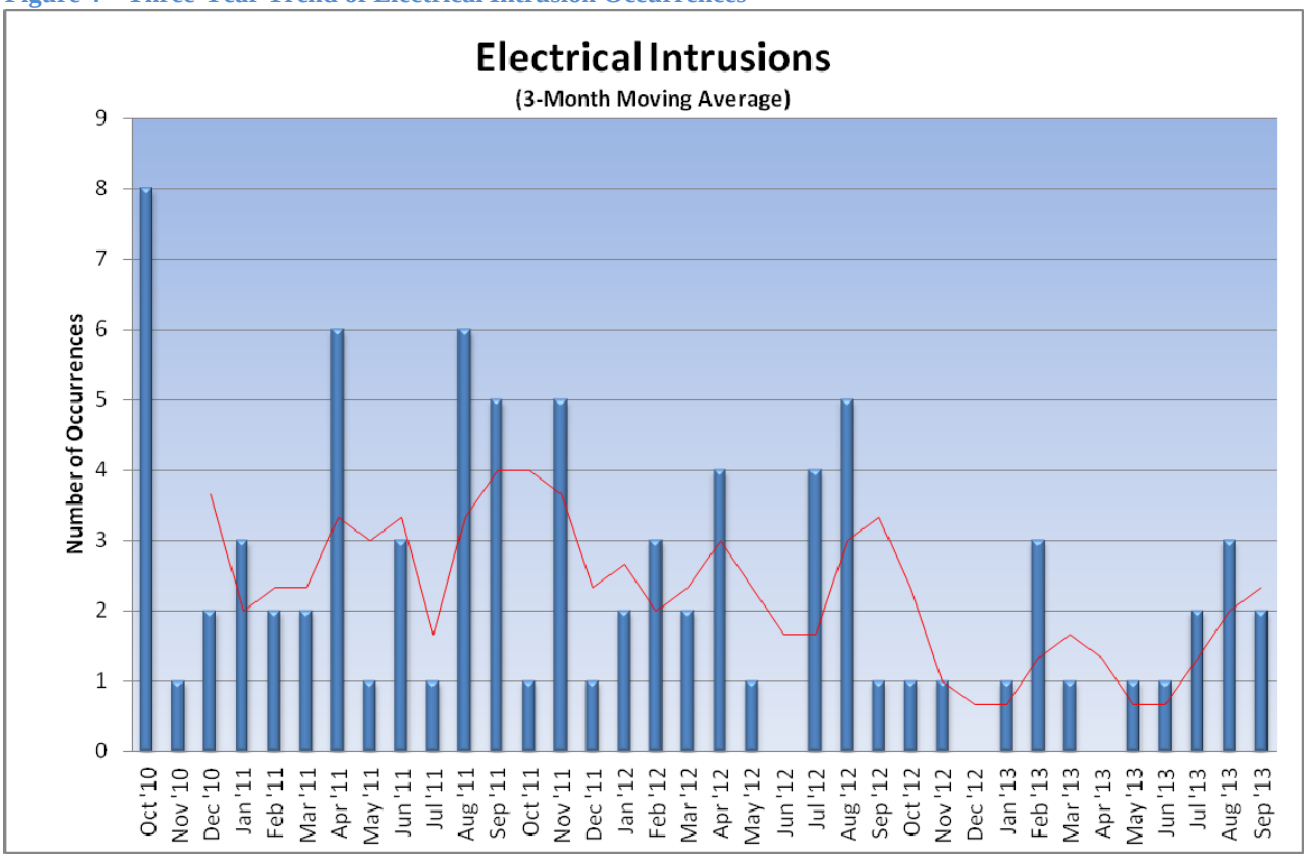
There were two electrical intrusion occurrences (i.e., cutting/penetrating, excavating, or vehicle/equipment contact of overhead electrical hazards) for September, which is a decrease from the three occurrences in August. These occurrences are summarized below.

1. A subcontractor struck an underground electrical conduit while excavating a trench for installation of new piping. The conduit contained 480-volt electrical service for perimeter street lights. A soil excavation permit had identified the underground electrical utility and the area was properly marked by the Laboratory locators. A week before the incident, the subcontractor used non-destructive methods to locate marked utilities. Some of the markings were eventually disturbed by other activities. Two 30-inch holes were dug on either side of the conduit; however, the conduit was never located. There was no shock or injury to personnel.

2. A technician was moving a transfer cart when the cart quit moving because the transfer cart power cable had been run over damaging the power cord. The technician then unplugged, rolled-up, and stored the power cable then notified his supervisor. The power supply was tagged out-of-service. The technician potentially put himself at risk by rolling up and storing a damaged power cord that could have been energized.

Figure 4 shows a 3-year trend of electrical intrusion occurrences for the DOE complex. During this period we have seen an average of just under 3 occurrences per month (2.4).

Figure 4 – Three-Year Trend of Electrical Intrusion Occurrences



Hazardous Energy Control

In September there were six reported occurrences involving lockout/tagout (LOTO), which is an increase from the three reported in August. These occurrences are summarized below.

Occurrences Involving Lockout/Tagout

1. Prior to receiving contractor orientation by the EHS Point of Contact (POC) to install a new light soak table, a vendor completed a portion of the work which was a visual inspection of the 480-volt power and control cabinets for a light table. The vendor had verified the disconnect switch to the equipment was in the off position but did not apply a LOTO, perform a zero-energy verification, or wear the appropriate electrical safety Personal Protective Equipment. The POC discussed the nature of the work with the vendor and an incident investigation was initiated.

2. A LOTO violation occurred when electricians, who were troubleshooting and repairing three inoperable 277-volt pole mounted parking lot lights, believed that use of the in-line fuse holder met the exception for cord and plug use. At the base of the light poles, there is a covered opening for access to the plug-in fuse holders. The fuses are plugged into the load side of the rubber boot; the other half of the booted fuse holder overlaps the first half of the fuse holder. At light pole number 2 the electricians found voltage applied but the light still did not work. They determined that the ballast was bad so they disconnected the hot and neutral fuse holders, performed an absence of voltage check, and removed the fuses at the base of the pole. A LOTO Interpretative Authority determined that the in-line fuse holder was not the proper use of the exception because it was not cord and plug equipment and there was no exclusive control of the booted in-line fuse holder.

3. A cafeteria food service vendor scheduled sub-tier supplier employees to arrive on site to deliver equipment and review the process to install an upgrade for the liquid soap dispenser for the commercial dishwashing machine. The food service vendor manager arrived and met the supplier employee, entered the dishwashing room and noticed that the employee had not followed the Hazardous Energy Control procedure when he de-energized the 208-volt power for the dishwashing unit and opened an inspection plate for the control unit and installed several components of the new soap dispensing system without having work authorization.

4. Lighting fixture circuits had been locked out using an equipment-specific LOTO and control tags were applied; however, the LOTO confirmation of isolation portion was signed out of sequence before the actual verification of absence of voltage at the point of work. Only visual confirmation had been performed on the lighting as the circuits were turned off. No personnel were injured and no equipment damage occurred.

5. While subcontractors were collecting data from a water monitoring unit they had installed, they determined that the monitoring unit needed to be adjusted and, without notifying Operations, opened the main power breaker on the front of the unit and unplugged the unit power cord from the 480-volt welding receptacle. After adjustments were made, the monitoring unit would not power up and the subcontractors requested assistance from the control room supervisor, who sent out a process operator. The process operator found the subcontractor representatives with two blown fuses and, believing they had approval to work on their equipment, helped them replace the fuses and powered on the monitoring. When informed of the actions that had been taken, the shift supervisor immediately stopped all work.

6. A field safety representative saw an electrical wire left in an unacceptable condition (e.g., wiring not contained within electrical boxes) in a closed cafeteria being prepped for demolition. Upon further inquiry, it was found that unauthorized work had been performed earlier in the week by subcontractors who operated the cafeteria. The work included disconnecting and removing hard-wired 120/208-volt equipment. It appears that this work was performed with the electrical circuits de-energized but not locked out. Immediate actions were taken to put the building in a safe condition and an investigation is underway.

Occurrences Involving Discovery of Uncontrolled Hazardous Energy

1. A worker in an accelerator tunnel heard something that sounded like the popping of an electrical arc and followed the sound to a bundle of several cut wires near an overhead cable tray. The area around the arcing cable was secured until electrical power from the top-side service building was secured. Upon review, the arcing coincided with power being restored earlier the same morning to Ion Pumps in the same general area of the accelerator tunnel. The event may be attributed to the use of a legacy high voltage cable connected to a supplemental Ion Pump power supply (5,200 volt, 70 milliamps), which remained throughout the efforts to replace all other cables in this location.

2. An electrical worker discovered an unexpected voltage while performing an absence of voltage check on a light fixture as Facilities, Infrastructure and Services electrical personnel were performing a lighting fixture upgrade project. There were no exposed conductors or contact with a voltage source. The unexpected voltage source was identified and safely secured.

Figure 5 shows a 3-year trend of LOTO occurrences for the DOE complex. The monthly average is 4.0 occurrences.

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

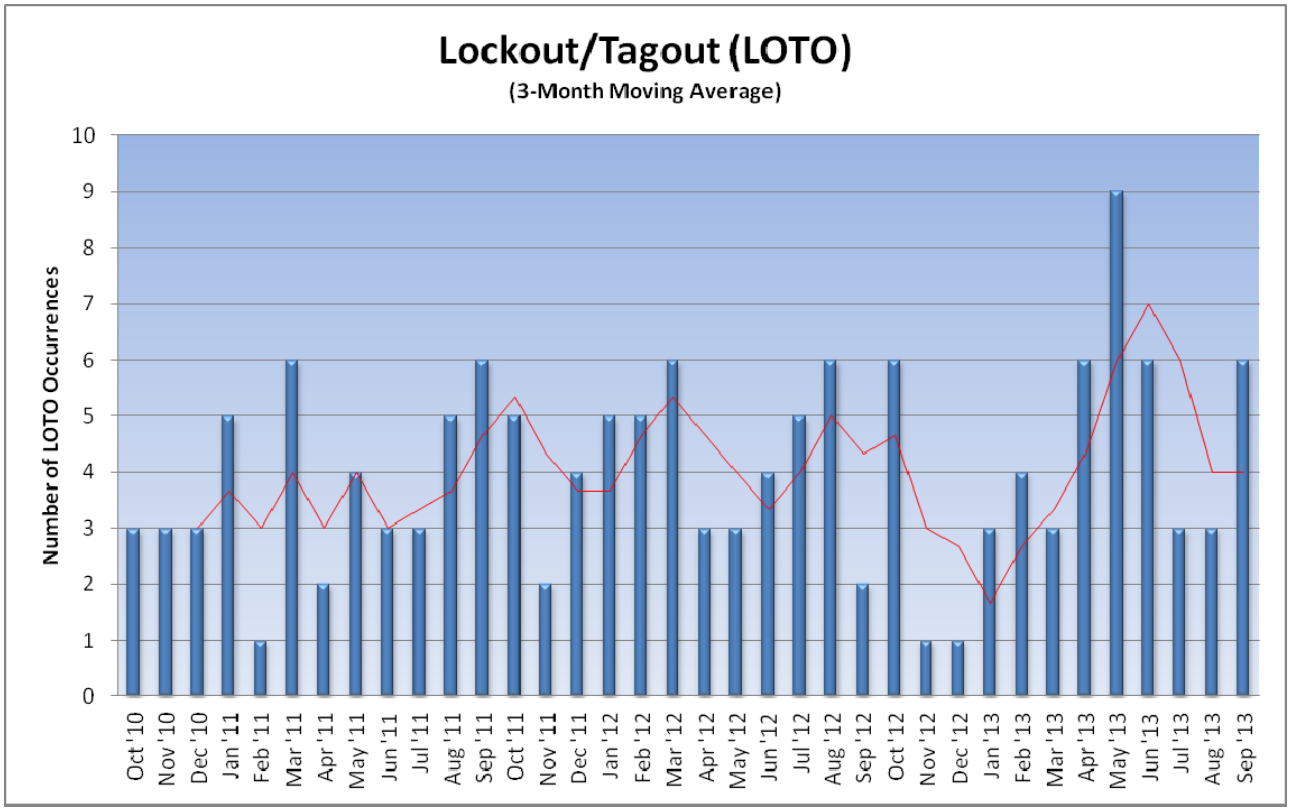
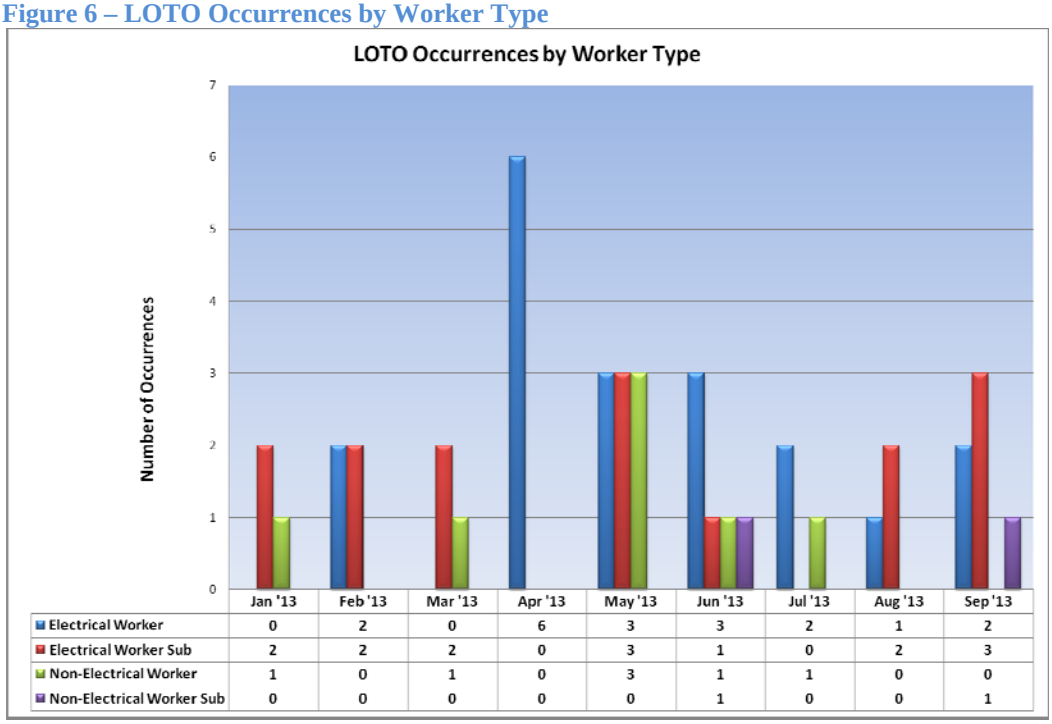


Figure 6 shows LOTO occurrences by worker type. The distribution by percentage is 44% for electrical workers, 35% for electrical worker subcontractors, 16% for non-electrical workers, and 5% for non-electrical worker subcontractors.

Figure 6 – LOTO Occurrences by Worker Type



Electrical Near Miss

There were three electrical near miss occurrences reported in September, which is a decreased from the eight occurrences reported in August.

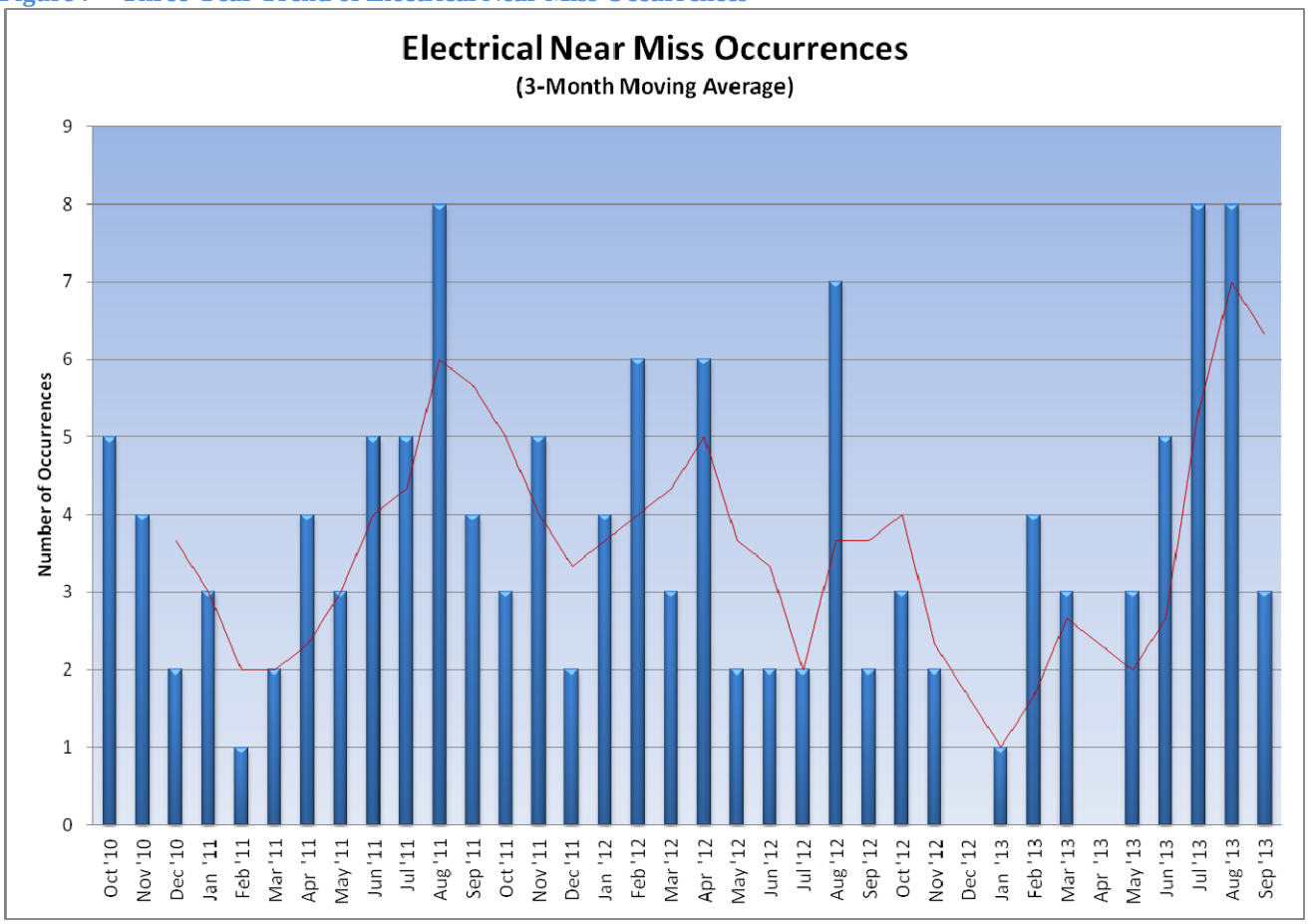
1. A subcontractor struck an underground electrical conduit containing 480-volt electrical service for perimeter street lights while excavating a trench for installation of new piping. (See Electrical Intrusion Section – #1)

2. A transfer cart ran over and damaged a power cable. (See Electrical Intrusion Section – Occurrence #2)

3. A worker in an accelerator tunnel heard the popping of an electrical arc associated with a 5,200-volt legacy cable. (See Occurrences Involving Discovery of Uncontrolled Hazardous Energy – Occurrence #1)

Figure 7 shows a 3-year trend of near miss occurrences for the DOE complex. The monthly average is 3.6 occurrences.

Figure 7 – Three-Year Trend of Electrical Near Miss Occurrences



Monthly Occurrences Tables

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

Table 1 - Breakdown of Electrical Occurrences

Number of Occurrences (September)	Involving:	Last Month (August)
2	Electrical Shocks	2
0	Electrical Burns	0
6	Hazardous Energy Control (LOTO)	3
2	Inadequate Job Planning	3
1	Inadvertent Drilling/Cutting of Electrical Conductors	1
1	Excavation of Electrical Conductors	1
0	Vehicle Intrusion of Electrical Conductors or Equipment	1
3	Electrical Near Misses	8
5	Electrical Workers	7
5	Non-Electrical Workers	5
5	Subcontractors	5

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

In compiling the monthly totals, the search looked for occurrence discovery dates in this month [excluding Significance Category R (Recurring) reports] and for the following ORPS HQ keywords:

01K – Lockout/Tagout Electrical, 01M – Inadequate Job Planning (Electrical), 08A – Electrical Shock, 08J – Near Miss (Electrical), 12C – Electrical Safety

Table 2 provides a summary of the electrical safety occurrences for the previous 5 years and CY 2013. The average number of occurrences a year ago (September 2012) was 12.7 per month and the number of shocks were 24.

Table 2 - Summary of Electrical Occurrences

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
September	11	2	0	0
August	12	2	0	0
July	20	5	0	0*
June	13	1	0	0
May	17	3	0	0
April	11	2	0	0
March	14	4	0	0
February	13	4	0	0
January	7	2	0	0

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
2013 total	118 (avg. 13.1/month)	25	0	0
2012 total	138 (avg. 11.5/month)	30	1	0
2011 total	136 (avg. 11.3/month)	36	5	0
2010 total	155 (avg. 12.9/month)	28	2	0
2009 total	128 (avg. 10.7/month)	25	3	0
2008 total	113 (avg. 9.4/month)	26	1	0

(*) Although there were no fatalities reported in ORPS, a lineman at a Bonneville Power Administration substation was electrocuted on July 30 while relocating 115kV sectionalizing disconnect switches. The accident occurred when the lineman came in contact with a difference of potential across a blade end insulator stack for a switch because the work crew failed to establish an equipotential zone (EPZ).

Figure 8 shows the distribution of electrical safety occurrences by Secretarial Office.

Figure 8 - Electrical Occurrences by Month and Secretarial Office

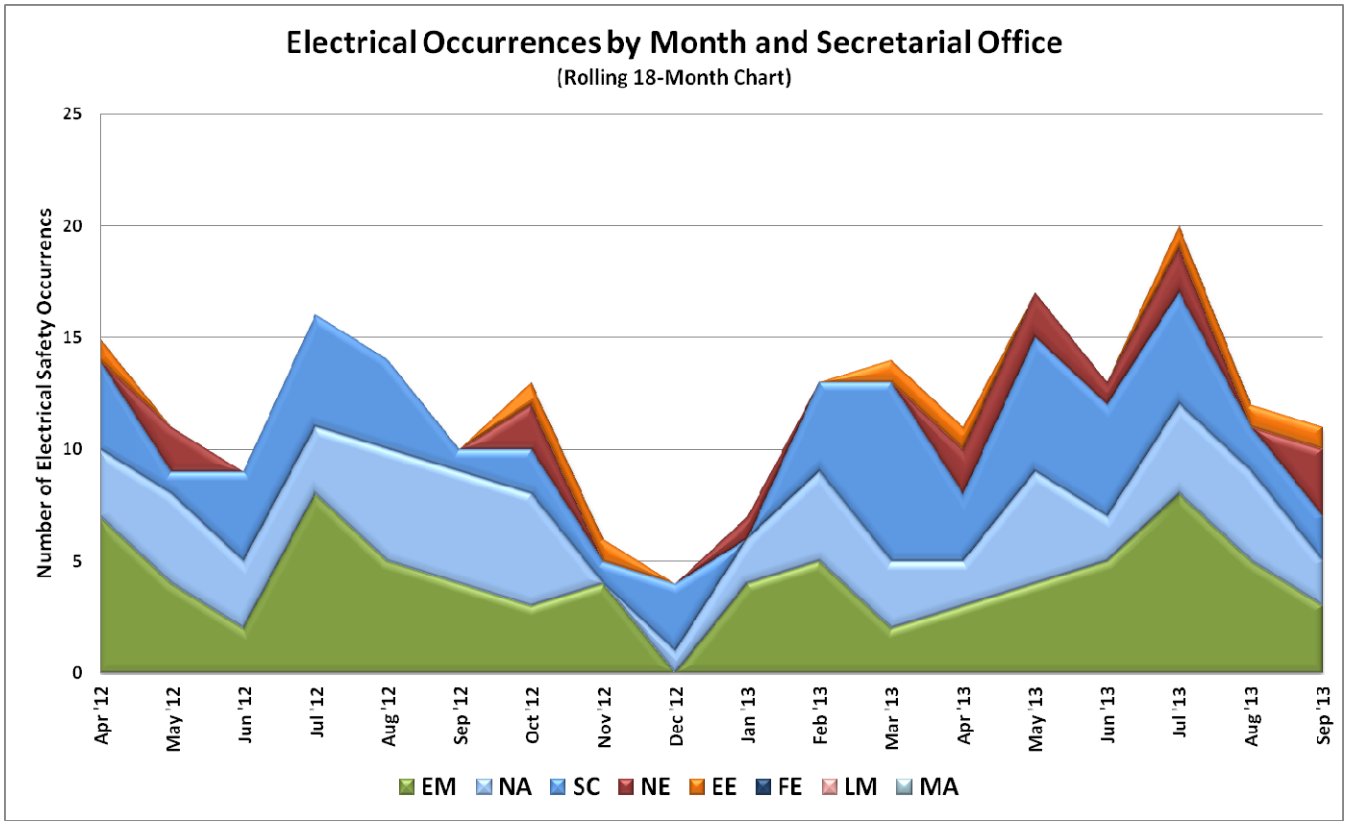
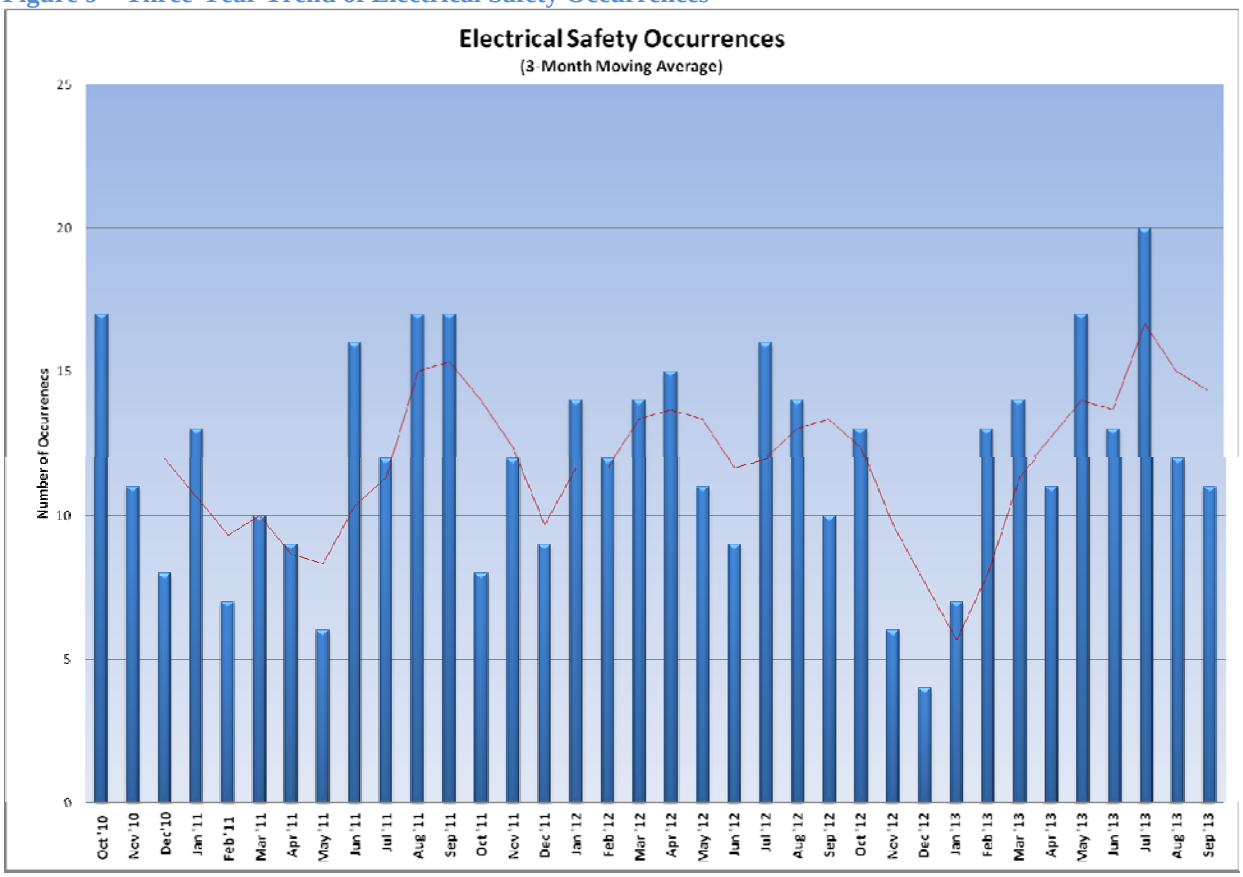


Figure 9 shows 3-year trend of electrical safety occurrences for the DOE complex.

Figure 9 – Three-Year Trend of Electrical Safety Occurrences



Electrical Severity

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

Electrical Severity Scores

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

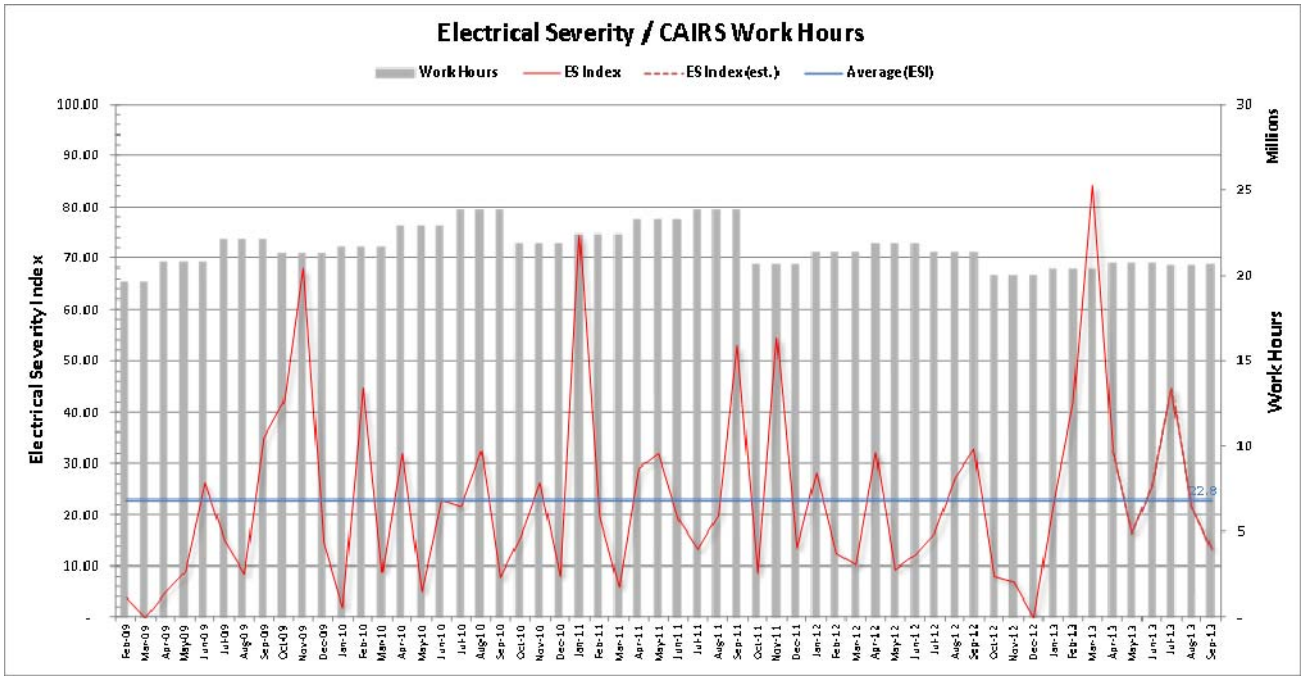
Table 3 – Classification of Electrical Safety Occurrences by ES Score

Occurrence Classification	Electrical Severity Score	Number of Occurrences
HIGH	≥ 1750	0
MEDIUM	31-1749	6
LOW	0-30	5

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 10 shows a calculated ESI for the DOE complex and Table 4 shows the ESI.

Figure 10 - 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

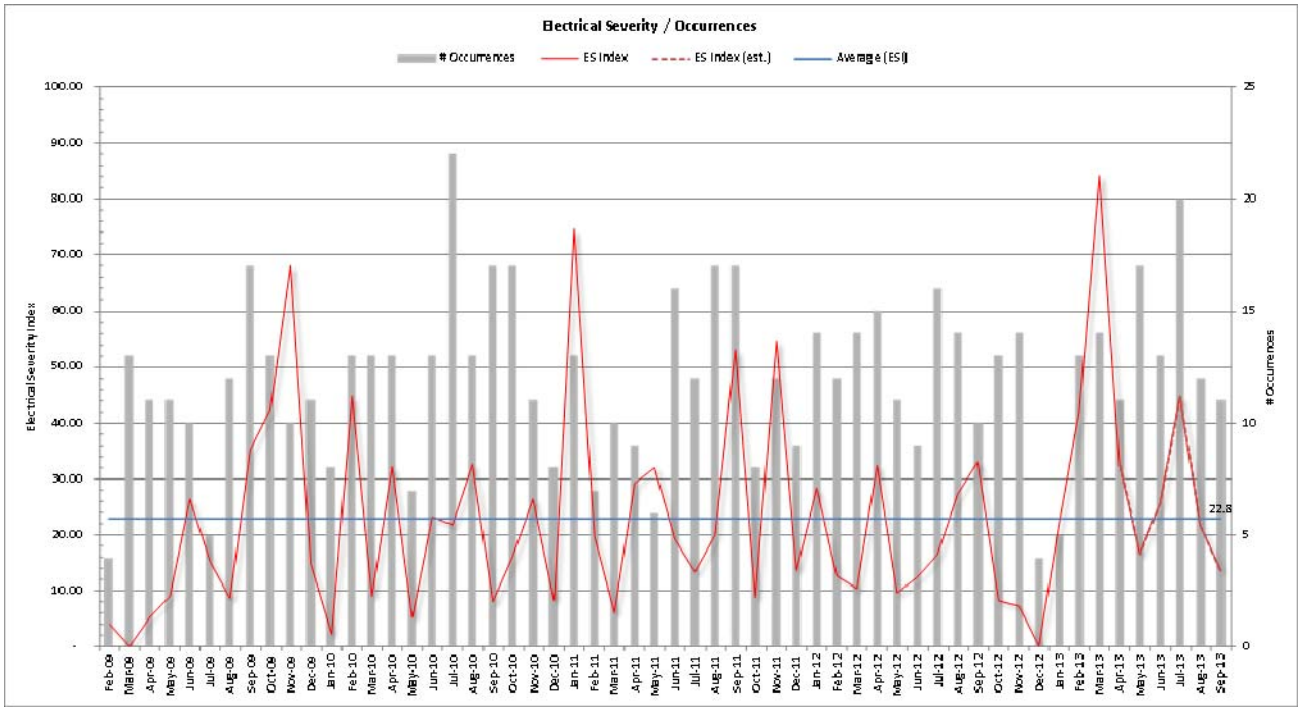
Category	August	September	Δ
Total Occurrences	12	11	-1
Total Electrical Severity	2,230	1,380	-850
Estimated Work Hours	20,540,877* (20,540,877)	20,567,469	+26,582
ES Index	21.71* (21.71)	13.42	-8.29
Average ESI	22,9	22.8	-0.1

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

Electrical Severity Index = (Σ Electrical Severity / Σ Work Hours) 200,000

Figure 11 shows the ESI with the number of Occurrences instead of Work Hours.

Figure 11 - Electrical Severity Index Compared to Number of Occurrences



The average ESI (22.8) has remained fairly steady over the last three months following high severity occurrences in March and July. The lowest average ESI was 19.2 in June 2010.

Figure 12 shows the number of days since the previous high severity occurrence. The present interval is 77 days as of September 30. The previous longest interval was 679 days ending March 12, 2013.

Figure 12 - Days since Previous High Severity Occurrence

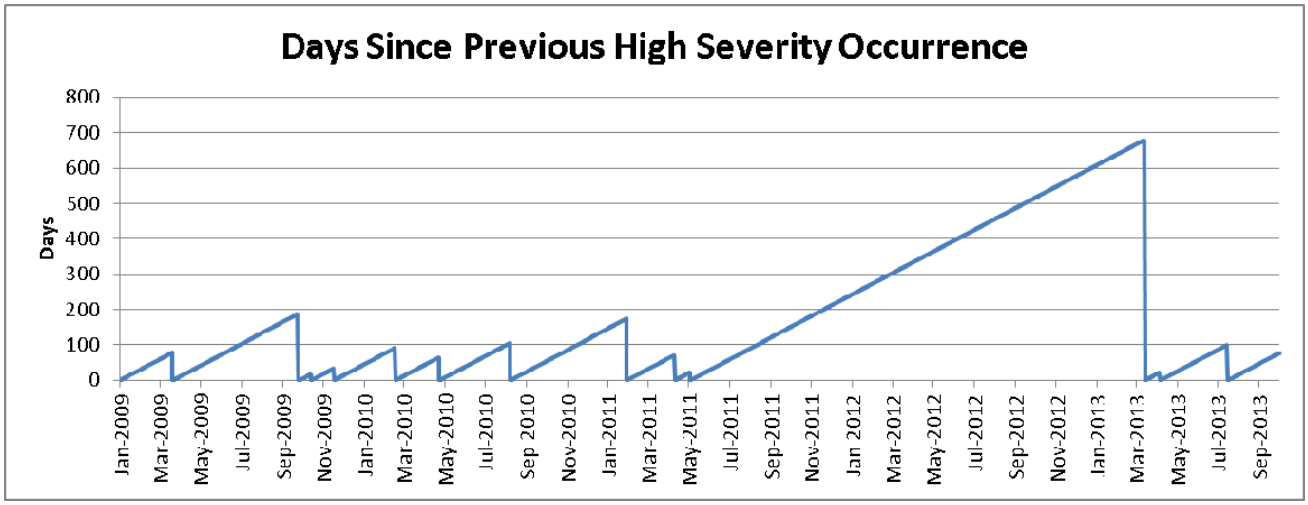
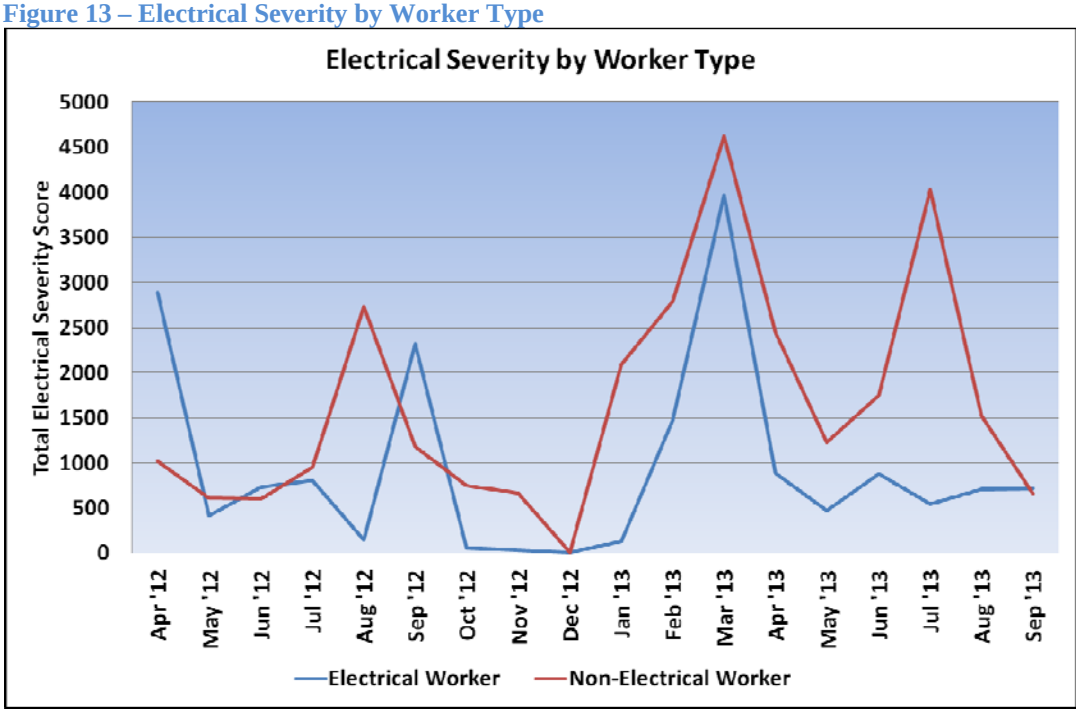


Figure 13 shows the total electrical severity score by worker type for each month.

Figure 13 – Electrical Severity by Worker Type

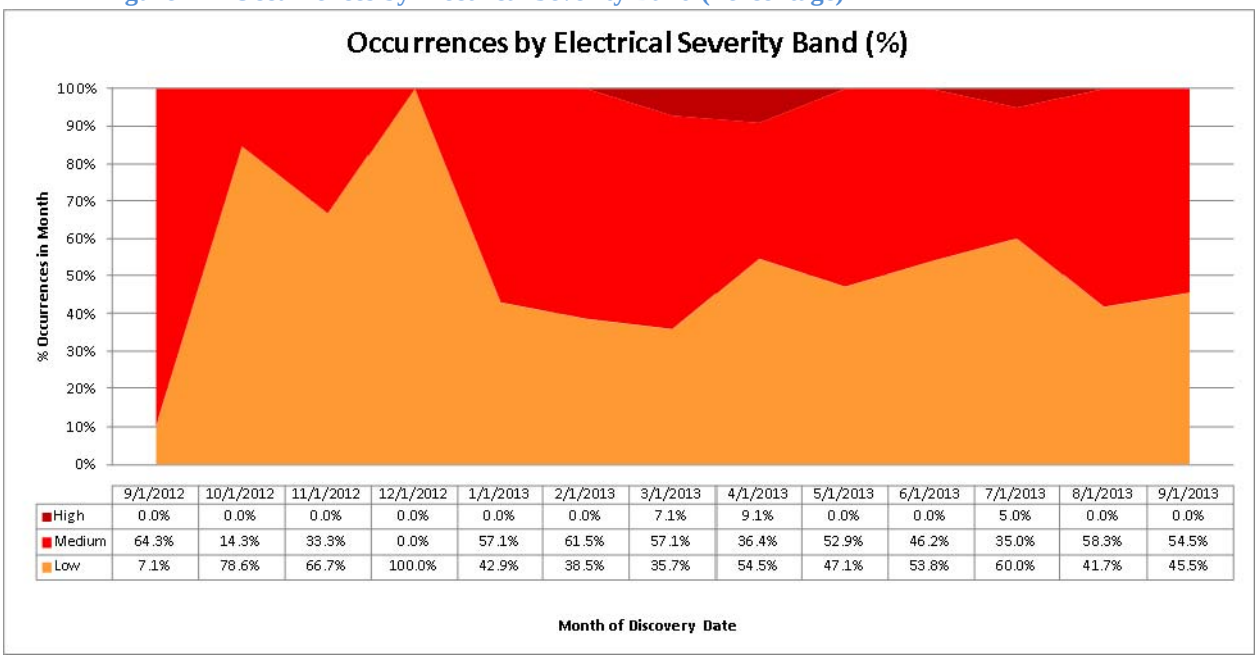


The present ES score for electrical workers is 720 and 660 for non-electrical workers.

Summary of Occurrences by Severity Band

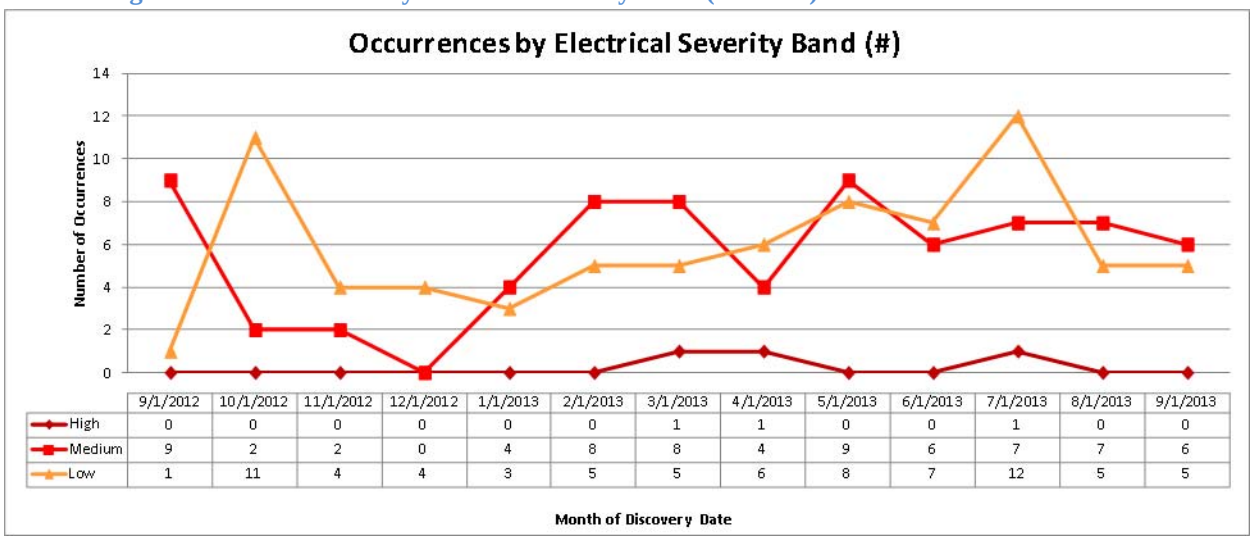
For the interval September 2012 through September 2013 (current month and the past 12), Figures 14 and 15 summarize occurrences by severity band and month of discovery date by percentage of total occurrences in month and number of occurrences in month.

Figure 14 - Occurrences by Electrical Severity Band (Percentage)



	9/1/2012	10/1/2012	11/1/2012	12/1/2012	1/1/2013	2/1/2013	3/1/2013	4/1/2013	5/1/2013	6/1/2013	7/1/2013	8/1/2013	9/1/2013
High	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%	9.1%	0.0%	0.0%	5.0%	0.0%	0.0%
Medium	64.3%	14.3%	33.3%	0.0%	57.1%	61.5%	57.1%	36.4%	52.9%	46.2%	35.0%	58.3%	54.5%
Low	7.1%	78.6%	66.7%	100.0%	42.9%	38.5%	35.7%	54.5%	47.1%	53.8%	60.0%	41.7%	45.5%

Figure 15 - Occurrences by Electrical Severity Band (Number)

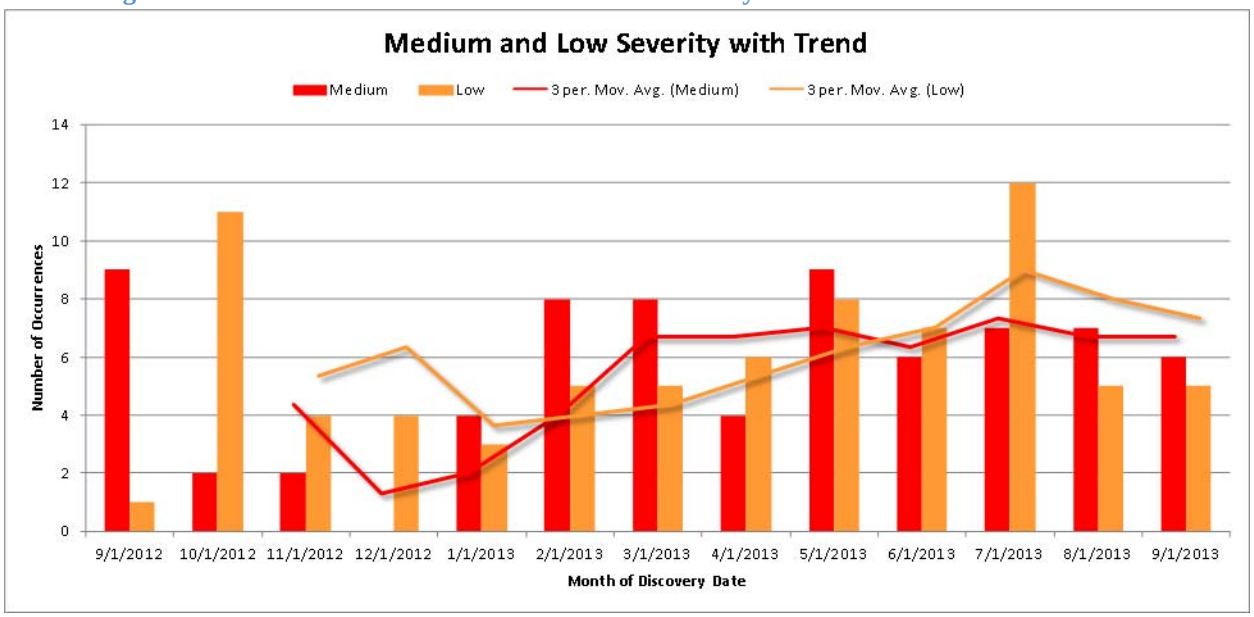


The previous two charts show that a high electrical severity event occurred in March, April and July ending a 679-day period since the last occurrence in May 2011. The number of occurrences with Medium severity scores decreased slightly while the Low severity scores remained the same.

Medium and Low Severity with Trend

Figure 16 focuses on the Medium and Low severity data series for September 2012 through September 2013. Trend lines are included for each, using a 3-month moving average.

Figure 16 - Trend of Medium and Low Electrical Severity Occurrences



The 3-month moving average shows a slightly decreasing trend for Low and a flatening for Medium severity occurrences following an increase since the beginning of the year.

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 – September 2013

No	Report Number	Event Summary	SHOCK	BURN	ARCF[1]	LOTO[2]	PLAN[3]	EXCAV[4]	CUT/D[5]	VEH[6]	SC[7]	RC[8]	ES[9]
1	EE-GO--NREL-NREL-2013-0019	A vendor visually inspected a 480V power cabinet without a LOTO, zero-energy check, or PPE.				X	X				3	2E(3), 10(2)	0
2	EM-RL--MSC-FSS-2013-0008	Electricians believed the use of an in-line fuse holder met the exception for cord and plug use.				X	X				4	2E(3)	50
3	EM-SR--PSC-SWPF-2013-0003	An electrician was exposed to the discharge of a coating tester that uses extremely low current DC.	X								4	10(2)	0
4	EM-SR--SRNS-MOGEN-2013-0004	Vendor de-energized 208V power to dishwasher and removed inspection plate without a LOTO.				X					4	2E(3)	120
5	NA--LSO-LLNL-LLNL-2013-0037	An excavator struck a buried conduit containing 480V electrical service for lights.						X			4	10(2)	0
6	NA--YSO-BWXT-Y12SITE-2013-0023	An electrician discovered an unexpected voltage during a zero-energy check on a light fixture.				X					3	2E(2)	10
7	NE-ID--BEA-ATR-2013-0032	Subcontractors opened a breaker on a unit and unplugged the unit power cord from a 480V welding receptacle without a LOTO.				X					4	2E(3)	550
8	NE-ID--BEA-FCF-2013-0002	A technician rolled up and stored a damaged power cord that could have been energized.							X		2	10(3)	200
9	NE-ID--BEA-HFEF-2013-0003	A Health Physics Technician accidentally touched exposed conductors on a 120V switch and received a shock.	X								2	2E(1)	330

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]
10	SC--SSO-SU-SLAC-2013-0011	A subcontractor disconnected hard-wired 120/208V equipment without a LOTO.				X					4	2E(3)	110
11	SC--TJSO-JSA-TJNAF-2013-0007	Electrical arcing was heard in a bundle of cut wires near a cable tray that had a legacy 5.2kV cable.									3	2E(2)	10
	TOTAL		2	0	0	6	2	1	1	0			

Key

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

ES Scores: High is $\geq$ 1750, Medium is 31-1749, and Low is 1-30

Attachment 1

Electrical Safety Occurrences – September 2013

No	Report Number	Event Summary	EW[1]	N-EW[2]	SUB[3]	HFW[4]	WFH[5]	PPE[6]	70E[7]	VOLT[8] H	VOLT[8] L	C/I[9]	NEUT[10]	NM[11]
1	EE-GO--NREL-NREL-2013-0019	A vendor visually inspected a 480V power cabinet without a LOTO, zero-energy check, or PPE.	X		X			X	X		X			
2	EM-RL--MSC-FSS-2013-0008	Electricians believed the use of an in-line fuse holder met the exception for cord and plug use.	X			X					X			
3	EM-SR--PSC-SWPF-2013-0003	An electrician was exposed to the discharge of a coating tester that uses extremely low current DC.	X			X					X			
4	EM-SR--SRNS-MOGEN-2013-0004	Vendor de-energized 208V power to dishwasher and removed inspection plate without a LOTO.		X	X			X	X		X			
5	NA--LSO-LLNL-LLNL-2013-0037	An excavator struck a buried conduit containing 480V electrical service for lights.			X	X					X			X
6	NA--YSO-BWXT-Y12SITE-2013-0023	An electrician discovered an unexpected voltage during a zero-energy check on a light fixture.	X								X			
7	NE-ID--BEA-ATR-2013-0032	Subcontractors opened a breaker on a unit and unplugged the unit power cord from a 480V welding receptacle without a LOTO.	X		X	X			X		X			
8	NE-ID--BEA-FCF-2013-0002	A technician rolled up and stored a damaged power cord that could have been energized.				X					X			X
9	NE-ID--BEA-HFEF-2013-0003	A Health Physics Technician accidentally touched exposed conductors on a 120V switch and received a shock.	X			X					X			

X

Attachment 1

No	Report Number	Event Summary	EW[1]	N-EW[2]	SUB[3]	HFW[4]	WFH[5]	PPE[6]	70E[7]	VOLT[8] H	VOLT[8] L	C/I[9]	NEUT[10]	NM[11]
10	SC--SSO-SU-SLAC-2013-0011	A subcontractor disconnected hard-wired 120/208V equipment without a LOTO.	X		X				X		X			
11	SC--TJSO-JSA-TJNAF-2013-0007	Electrical arcing was heard in a bundle of cut wires near a cable tray that had a legacy 5.2kV cable.		X		X				X				X
	TOTAL		6	5	5	3 X	8	2	4	1	10	0	0	3

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

ORPS contains 56350 OR(s) with 59660 occurrences(s) as of 10/22/2013 12:05:58 PM
Query selected 11 OR(s) with 11 occurrences(s) as of 10/22/2013 12:38:07 PM

Download this report in Microsoft Word format.

1)Report Number: EE-GO--NREL-NREL-2013-0019 **After 2003 Redesign**
Secretarial Office: Energy Efficiency and Renewable Energy
Lab/Site/Org: National Renewable Energy Laboratory
Facility Name: National Renewable Energy Laboratory
Subject/Title: Vendor performs work on equipment without adequate controls
Date/Time Discovered: 09/09/2013 14:00 (MTZ)
Date/Time Categorized: 09/09/2013 16:30 (MTZ)
Report Type: Notification
Report Dates:

Notification	09/11/2013	19:00 (ETZ)
Initial Update		
Latest Update		
Final		

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

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

Cause Codes:
ISM: 1) Define the Scope of Work
2) Analyze the Hazards
3) Develop and Implement Hazard Controls
4) Perform Work Within Controls
Subcontractor Involved: Yes
Autonometrics
Occurrence Description: On Monday, September 9, 2013, a vendor was on-site at NREL's Energy Systems Integration Facility (ESIF) to commission a new piece of laboratory equipment (a light soak table) located in the Optical Characterization Laboratory (OCL). Research staff notified the group's

	EHS Point of Contact (POC) that the vendor was on-site and needed an EHS Research Support Contractor Orientation. When the EHS POC arrived at the OCL lab, it was discovered that the vendor had already completed part of his work task. The portion of the work task which had already been completed was a visual inspection of the 480 VAC power and control cabinets for the light table. Prior to opening the power cabinets, the vendor verified the disconnect switch to the equipment was in the off position. However, discussion between the EHS POC and vendor revealed that the vendor had not applied lockout/tagout; had not performed a zero energy verification; and was not wearing the appropriate electrical safety PPE for the task. No injury resulted from this occurrence. The open panel presented exposed electrical contacts with a Category 1 arc flash potential. NREL EHS initiated an incident investigation.
Cause Description:	
Operating Conditions:	Normal operating conditions
Activity Category:	Facility/System/Equipment Testing
Immediate Action(s):	1. The NREL EHS POC discussed the nature of the work the vendor had completed, and the work that he had yet to complete. 2. NREL EHS initiated an incident investigation.
FM Evaluation:	No injuries or property damage resulted from this occurrence.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	National Center for Photovoltaics
Plant Area:	South Table Mountain
System/Building/Equipment:	Energy Systems Integration Facility
Facility Function:	Laboratory - Research & Development
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance 11G--Other - Subcontractor 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)

14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency

HQ Summary: On September 9, 2013, prior to receiving contractor orientation by the EHS Point of Contact (POC) to install a new light soak table, a vendor completed a portion of the work which was a visual inspection of the 480 VAC power and control cabinets for the light table. The vendor had verified the disconnect switch to the equipment was in the off position but had not applied a lockout/tagout, performed a zero-energy verification, and did not wear the appropriate electrical safety Personal Protective Equipment. The POC discussed the nature of the work with the vendor and an incident investigation was initiated.

Similar OR Report Number:

Facility Manager:

Name	JORDAN, MAUREEN Y
Phone	(303) 275-3248
Title	SENIOR ENVIRONMENTAL SCIENTIST

Originator:

Name	LITTRELL, BOBBIJO R.
Phone	(303) 275-3230
Title	COMPLIANCE ASSURANCE SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/10/2013	08:03 (MTZ)	Event Distribution	DOE/NREL

Authorized Classifier(AC):

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2)Report Number: EM-RL--MSC-FSS-2013-0008 **After 2003 Redesign**
Secretarial Office: Environmental Management
Lab/Site/Org: Hanford Site
Facility Name: Facility & Site Services
Subject/Title: Lockout/Tagout "Technical Error" at 2266-E During Troubleshooting and Repair of Parking Lot Lighting
Date/Time Discovered: 09/18/2013 10:20 (PTZ)
Date/Time Categorized: 09/18/2013 10:20 (PTZ)
Report Type: Notification/Final
Report Dates:

Notification	09/20/2013	12:55 (ETZ)
Initial Update	09/20/2013	12:55 (ETZ)
Latest Update	09/20/2013	12:55 (ETZ)
Final	09/20/2013	12:55 (ETZ)

Significance Category: 4

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

Cause Codes:

ISM: 2) Analyze the Hazards
3) Develop and Implement Hazard Controls
4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On 09/17/2013, two Electricians were troubleshooting and repairing pole mounted lighting, working to a standing work package (2M-51686/W). A partial release of the work package was given to troubleshoot and repair three inoperable 277v parking lot lights at 2266-E, in the 200 East Area. At the base of the light poles, there is a covered opening for access to the plug-in fuse holders. The fuses are plugged into the load side of the rubber boot; the other half of the booted fuse holder overlaps the first half of the fuse holder. Checking for voltage at light pole number 2 (of 3 inoperable lights) the electricians found voltage applied but the light still did not work, leading them to suspect the lamp, starter or ballast was bad. Using a man lift, the craft checked the light fixture at the top of the pole looking for problems. The fuses were pulled at the bottom of the pole and an absence of voltage check was performed at the top of the pole. The lamp and starter were replaced one at a time with no results. They determined that the ballast was bad so they disconnected the hot and neutral fuse holders, and removed the fuses at the base of the pole. An absence of voltage check was performed and the ballast was then removed. No replacement parts were available, so the work was suspended and placed in a safe configuration.

An Event Investigation Meeting was held on 09/18/2013 with the Lock Out Tag Out (LOTO) Interpretative Authority (IA) and Subject Matter Expert; the DOE Facility Representative that identified the issue, and all personnel managing and involved in the work were in attendance. The electricians performing the work believed that use of the in-line fuse holder met the exception for cord and plug use per DOE-0336, Hanford Site "Lockout/Tagout Procedure", Section 2.0, Scope, "cord-and-plug-connected electric equipment" exception. The IA determined that the in-line fuse holder was not the proper use of the exception because it was not cord and plug equipment and there was no exclusive control of the booted in-line fuse holder. As stated above, the Electricians performed the absence of voltage checks where appropriate and were never exposed to any electrical energy during the performance of this job.

Note: The Electrical Severity Measurement Score is "50."

Cause Description:

Operating Conditions:	Normal Operations
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s):	1. The electricians were reminded that the work package is required to be with them in the field. 2. The Supervisor was instructed not to perform work on this lighting circuit until the Event Investigation was completed. 3. Work was stopped and the light was placed in a safe condition (fuses removed).
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	MSA/Site Infrastructure & Logistics (SI&L)
Plant Area:	200 East Area
System/Building/Equipment:	2266-E Building / Parking Lot Light Pole Number 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) 01M--Inadequate Conduct of Operations - Inadequate Job Planning (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 September 18, 2013, a Lock Out Tag Out (LOTO) violation occurred when electricians troubleshooting and repairing three inoperable 277-volt pole mounted parking lot lights at 2266-E, in the 200 East Area believed that use of the in-line fuse holder met the exception for cord and plug use per DOE-0336, Hanford Site "Lockout/Tagout Procedure", Section 2.0, Scope, "cord-and-plug-connected electric equipment." At the base of the light poles, there is a covered opening for access to the plug-in fuse holders. The fuses are plugged into the load side of the rubber boot; the other half of the booted fuse holder overlaps the first half of the fuse holder. At light pole number 2 the electricians found voltage applied but the light still did not work. They determined that the ballast was bad so they disconnected the hot and neutral fuse holders, performed an absence of voltage check, and removed the fuses at the base of the pole. A LOTO

Interpretative Authority determined that the in-line fuse holder was not the proper use of the exception because it was not cord and plug equipment and there was no exclusive control of the booted in-line fuse holder.

Similar OR Report Number:

Facility Manager:

Name	T. L. Ostrander
Phone	(509) 372-1640
Title	Director, Maintenance Services

Originator:

Name	TRUMP, GARY D
Phone	(509) 376-3030
Title	HANFORD EOC SHIFT OFFICE

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/18/2013	10:20 (PTZ)	BL Wallace	DOE-RL
09/18/2013	11:50 (PTZ)	MB Wilson	MSA
09/18/2013	12:38 (PTZ)	ML Boyce	MSA/EOC

Authorized Classifier(AC):

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3)Report Number: EM-SR--PSC-SWPF-2013-0003 **After 2003 Redesign**

Secretarial Office: Environmental Management

Lab/Site/Org: Savannah River Site

Facility Name: Salt Waste Processing Facility

Subject/Title: Personnel exposure to a holiday tester discharge

Date/Time Discovered: 09/25/2013 08:30 (ETZ)

Date/Time Categorized: 09/30/2013 07:35 (ETZ)

Report Type: Notification/Final

Report Dates:

Notification	10/02/2013	17:14 (ETZ)
Initial Update	10/02/2013	17:14 (ETZ)
Latest Update	10/02/2013	17:14 (ETZ)
Final	10/02/2013	17:14 (ETZ)

Significance Category: 4

Reporting Criteria: 10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern for that facility or other facilities or activities in the DOE complex.
The significance category assigned to the management concern should be based on an evaluation of the potential risks and impact on safe operations.

	(1 of 4 criteria - This is a SC 4 occurrence)
Cause Codes:	
ISM:	2) Analyze the Hazards
Subcontractor Involved:	No
Occurrence Description:	On 9/25/2013 as part of the installation of a coated waste transfer line (WTL), a holiday test was performed by Quality Control (QC) personnel. The holiday test instrument operates using DC voltage at an extremely low current and gives an audible and visual indication if a flaw is detected in the surface of the coating. During the test, an electrician to determine the position of the holiday positioned a non-insulated inspection mirror too close to the detector probe causing an arc between the probe and mirror. The electrician experienced a sharp pain in his palm/wrist that was holding the mirror. The employee was evaluated and returned to work with no restrictions. The holiday tester being used was a D. E. Stearns Company Model 10/20 Regulated Voltage Holiday Detector. Inspection of the holiday tester indicates it was functioning properly before and after the event. The manufacturer's operating instructions did not include any safety precautions or warnings. Even though this event did not involve hazardous energy or personnel injury, actions were implemented to prevent personnel exposure to future inadvertent discharges. A lessons learned will be developed to raise awareness on the potential shortcomings of the manufacture's operating instructions.
Cause Description:	
Operating Conditions:	Construction
Activity Category:	Construction
Immediate Action(s):	Employee was evaluated by Safety and returned to work with no restrictions Holiday Testing was suspended. JHA 339 was revised to include Holiday detector work Activity
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	SWPF
Plant Area:	J Area
System/Building/Equipment:	Transfer Lines

Facility Function: Nuclear Waste Operations/Disposal

Corrective Action 01:

Target Completion Date:11/30/2013	**Tracking ID:**CR-2013-204

Develop corrective actions correlated to the issue, extent and apparent causes.

Lessons(s) Learned:

HQ Keywords: 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
01Q--Inadequate Conduct of Operations - Personnel error
08A--OSHA Reportable/Industrial Hygiene - Electrical Shock
12C--EH Categories - Electrical Safety
14E--Quality Assurance - Work Process Deficiency

HQ Summary: On September 25, 2013, while using a holiday test instrument as part of the installation of a coated waste transfer line, an electrician was exposed to an inadvertent discharge. The test instrument operates on direct voltage at an extremely low current and gives an audible and visual indication if a flaw is detected in the surface of the coating. During the test to determine the position of the test instrument, the electrician positioned a non-insulated inspection mirror too close to the detector probe causing an arc between the probe and mirror. The electrician experienced a sharp pain in his palm and wrist that was holding the mirror. The employee was evaluated and returned to work with no restrictions. The holiday testing was suspended.

Similar OR Report Number:

Facility Manager:

Name	Swanson, Brad
Phone	(803) 208-7598
Title	PLANT MANAGER

Originator:

Name	Padgett, Jimmy E.
Phone	(803) 208-7593
Title	PROCEDURE MANAGER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/25/2013	10:26 (ETZ)	Larry Zelants	DOE-FR
09/30/2013	08:35 (ETZ)	Jose Blanco	DOE-FR

Authorized Classifier(AC):

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4)Report Number: EM-SR--SRNS-MOGEN-2013-0004 **After 2003 Redesign**

Secretarial Office: Environmental Management

Lab/Site/Org: Savannah River Site

Facility Name: Management and Operating - General

Subject/Title: Failure of Food Services Vendor to Follow a Prescribed Hazardous Energy Control Process at the 766-H Cafeteria

Date/Time Discovered: 09/26/2013 12:16 (ETZ)

Date/Time Categorized: 09/26/2013 13:41 (ETZ)

Report Type: Notification/Final

Report Dates:

Notification	09/30/2013	16:37 (ETZ)
Initial Update	09/30/2013	16:37 (ETZ)
Latest Update	09/30/2013	16:37 (ETZ)
Final	09/30/2013	16:37 (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
3) Develop and Implement Hazard Controls
4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: On 09/26/2013, the 766-H Cafeteria Food Service vendor scheduled sub-tier supplier (Southern Paper/EcoLab) employees to arrive on site to deliver equipment and review the process to install an upgrade for the liquid soap dispenser for the commercial dishwashing machine at the 766-H cafeteria. Around 1200 hrs., the Food Service vendor manager arrived at Bldg. 766-H and met the EcoLab employee, entered the dishwashing room and noticed the EcoLab employee had already installed several components of the new soap dispensing system without having work authorization from the Savannah River Nuclear Solutions (SRNS) Facility Administrator. The 766-H Food Service manager initiated a Time Out and notified the Site Services 766-H Facility Administrator and the Subcontract Technical Representative (STR) for Food Services.

Note: The sub-tier (Southeast Paper) employee that had been contacted on the work scope by the 766-H Food Service vendor manager and who had previous experience at SRNS was out on disability. The sub-tier (Eco-Lab) employee that arrived on site had no previous SRNS work experience and was not clear on the work scope when he arrived.

Cause Description: The description of the cause(s) and corrective actions will be tracked in STAR # 2013-CTS-011620 pending further causal investigation.

Operating Conditions: Normal operating conditions. Food Service in progress.

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

Immediate Action(s):	The 766-H Facility Administrator arrived at 766-H and barricaded the area around the dishwashing station. Notifications were made to Site Services Management, Safety, Maintenance and Electrical Engineering for assistance. Site Services Maintenance Electricians verified a "Safe Energy State" and the equipment was administratively locked-out. Initial review of the unauthorized work performed by the sub-tier employee concluded that the EcoLab sub-tier employee had not followed the SRNS 8Q-32 Hazardous Energy Control procedure when he de-energized the 208VAC power for the dishwashing unit and opened an inspection plate for the control unit. This issue was classified as ORPS Reportable under criteria ORPS 2E(3); ORPS Sig 4: Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program). A Fact Finding Review meeting was scheduled for 09/30/2013. Issue evaluation and corrective actions will be tracked in SRNS Corrective Actions system STAR # 2013-CTS-011620.
FM Evaluation:	The Facility Manager has reviewed and concurs with the report. Electrical Severity (ES) = (Electrical Hazard Factor) * (1 + Environment Factor + Shock Proximity1 Factor + Arc Flash Proximity1 Factor + Thermal Proximity1 Factor) * (Injury Factor) Electrical Severity (ES) = 10 * (1 + 10 + 1 + 0 + 0) * (1) Electrical Severity (ES) = 120 (Medium) This report has been approved by T.M. Bolen, Director of Site Maintenance and Facility Support; and C.G. Reynolds, Director of Site Services on 09/30/2013
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	M&O/Site Services
Plant Area:	H-Area
System/Building/Equipment:	766-H Cafeteria
Facility Function:	Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)
Corrective Action:	

Lessons(s) Learned:

HQ Keywords:

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

HQ Summary:

On September 26, 2013, the 766-H Cafeteria food service vendor scheduled sub-tier supplier (Southern Paper/EcoLab) employees to arrive on site to deliver equipment and review the process to install an upgrade for the liquid soap dispenser for the commercial dishwashing machine. The food service vendor manager arrived and met the EcoLab employee, entered the dishwashing room and noticed that the EcoLab employee had not followed the Hazardous Energy Control procedure when he de-energized the 208-VAC power for the dishwashing unit and opened an inspection plate for the control unit and installed several components of the new soap dispensing system without having work authorization. The food service manager initiated a time-out and made appropriate notifications. The Facility Administrator barricaded the area around the dishwashing station and the maintenance electricians verified a “Safe Energy State” and the equipment was administratively locked-out.

Similar OR Report Number:

Facility Manager:

Name	JENKINS, CLAUDIA L.
Phone	(803) 208-0777
Title	Manager, Maintenance Site Services

Originator:

Name	HAAS, GARY M
Phone	(803) 557-4353
Title	LEAD OPERATIONS SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/26/2013	13:41 (ETZ)	K.A. Powell	Safety
09/26/2013	13:41 (ETZ)	C.G. Reynolds	SiteServ
09/26/2013	13:41 (ETZ)	C.L. Jenkins	Facility
09/26/2013	13:41 (ETZ)	M.K. Whittle	STR
09/26/2013	13:41 (ETZ)	T.M. Bolen	Maintena

09/26/2013	13:55 (ETZ)	A.K. Doane	DOE-SR
09/26/2013	14:09 (ETZ)	B. Sumner	SRSOC

Authorized Classifier(AC): HAAS, GARY M Date: 09/30/2013

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5)Report Number: NA--LSO-LLNL-LLNL-2013-0037 **After 2003 Redesign**
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Lawrence Livermore National Lab.
Facility Name: Lawrence Livermore Nat. Lab. (BOP)
Subject/Title: Subcontractor struck underground electrical conduit during excavation activities west side of Building 133
Date/Time Discovered: 09/12/2013 17:00 (PTZ)
Date/Time Categorized: 09/13/2013 13:45 (PTZ)
Report Type: Update
Report Dates:

Notification	09/17/2013	13:01 (ETZ)
Initial Update	10/11/2013	16:40 (ETZ)
Latest Update	10/11/2013	16:40 (ETZ)
Final		

Significance Category: 3
Reporting Criteria: 10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern for that facility or other facilities or activities in the DOE complex.
The significance category assigned to the management concern should be based on an evaluation of the potential risks and impact on safe operations. (1 of 4 criteria - This is a SC 3 occurrence)

Cause Codes:
ISM: 4) Perform Work Within Controls
Subcontractor Involved: No
Occurrence Description: On September, 12, 2013 at approximately 1700 hours a Subcontractor was excavating a trench on the west side of B133 for installation of new piping when they struck an underground conduit. The conduit contains 480 volt electrical for the perimeter street lights.

A Soil Excavation Permit was issued on 8/28/13 by the LLNL locators. The permit had identified the underground electrical utility and the area was properly marked by the LLNL locators. A week prior to the incident, non-destructive methods were used to locate marked utilities by the subcontractor. Approximately two 30 inch holes were dug on either side of the conduit; however, the conduit was never located.

	The area was area was secured with danger tape and work ceased until further investigation. There was no shock or injury to personnel. This occurrence report is being tracked in LLNL's Issues Tracking System, reference Assessment No. 36881.
Cause Description:	
Operating Conditions:	Normal
Activity Category:	Construction
Immediate Action(s):	1.LLNS immediately paused the work for the B133 RO Water Treatment Project . Notifications were provided to LLNL management and LLNS Project Management, Akima Construction Services (ACS), and ES&H personnel gathered at the job-site to evaluate current conditions. 2. The affected area was secured with danger tape and barricade tags to ensure personnel would be notified to not enter the area. 3. Area was deemed safe and secure to leave in the current state until the following morning when a more in-depth investigation could be performed. 4. LLNS initiated a work pause for all excavation activities on all ACS projects at LLNL. 5. ACS Management conducted re-training of personnel on the LLNL Soil Excavation Permitting process, pot-holing procedures, spotter responsibilities, and utility line marking requirements.
FM Evaluation:	Submit the final occurrence report to the ORO by 10/23/2013. Enter the final occurrence report into ORPS by 10/28/2013.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Kevin Akey By When:
Division or Project:	O&B, F&I
Plant Area:	Site 200
System/Building/Equipment:	Building 133 outside west area trenching with backhoe
Facility Function:	Laboratory - Research & Development
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	07D--Electrical Systems - Electrical Wiring

08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues
08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical)
12G--EH Categories - Industrial Operations
14E--Quality Assurance - Work Process Deficiency

HQ Summary: On September, 12, 2013, a subcontractor struck an underground electrical conduit while excavating a trench for installation of new piping on the west side of Building 133. The conduit contains 480-volt electrical service for the perimeter street lights. A soil excavation permit identified the underground electrical utility and the area was properly marked by the Laboratory locators. A week before the incident, the subcontractor used non-destructive methods to locate marked utilities. Two 30-inch holes were dug on either side of the conduit; however, the conduit was never located. The area was secured with danger tape and work ceased until further investigation. There was no shock or injury to personnel.

Similar OR Report Number: 1. DP-OAK--LLNL-LLNL-2002-0024
2. DP-OAK--LLNL-LLNL-2003-0012
3. DP-OAK--LLNL-LLNL-2003-0001

Facility Manager:

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

Originator:

Name	LUDWIG, MARK E.
Phone	(925) 422-6964
Title	OCCURRENCE REPORTING OFFICER

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/13/2013	15:34 (PTZ)	Roger Rocha	LEDO
09/13/2013	15:35 (PTZ)	Tracey Simpson	ES&H TL
09/13/2013	15:40 (PTZ)	James Davis III	NNSA LFO

Authorized Classifier(AC): Collette Nida-Brown Date: 09/13/2013

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6)Report Number: NA--YSO-BWXT-Y12SITE-2013-0023 **After 2003 Redesign**
Secretarial Office: National Nuclear Security Administration
Lab/Site/Org: Y12 National Security Complex
Facility Name: Y-12 Site
Subject/Title: Equipment Specific LOTO Error
Date/Time Discovered: 09/11/2013 17:30 (ETZ)

Date/Time Categorized: 09/11/2013 18:45 (ETZ)

Report Type: Update

Report Dates:

Notification	09/16/2013	16:15 (ETZ)
Initial Update	10/15/2013	07:10 (ETZ)
Latest Update	10/15/2013	07:10 (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: 4) Perform Work Within Controls

Subcontractor Involved: No

Occurrence Description: Facilities, Infrastructure and Services (FI&S) electrical personnel were performing a lighting fixture upgrade project. The identified circuits had been locked out using an Equipment Specific Lockout/Tagout (LOTO) and control tags were applied. The LOTO confirmation of isolation portion was signed out of sequence, prior to the actual verification of absence of voltage at the point of work. Only visual confirmation had been performed on the lighting as the circuits were turned off. As the fixtures were accessed using a scissors lift, the reflector/covers were removed and lowered to the ground to be surveyed for contamination by a radiological control (RadCon) technician. When one of the readings was higher than expected, the RadCon technician went up in the lift and surveyed the fixture body. Afterwards, during the course of performing the absence of voltage check at the light fixtures, an unexpected voltage was discovered by the electrical worker. There were no exposed conductors or contact with a voltage source. No personnel were injured and no equipment damage occurred.

Cause Description:

Operating Conditions: The facility was operating normally.

Activity Category: Maintenance

Immediate Action(s): The unexpected voltage source was identified and safely secured.
A temporary suspension of all Equipment Specific LO/TO associated with building lighting was issued.
Management notifications were made.

FM Evaluation: Due to uncertainties resulting from the government shutdown and curtailment of activities at the Y-12 National Security Complex, the final report for this occurrence will be issued by December 12, 2013.

DOE Facility Representative

Input:

DOE Program Manager Input:

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

Division or Project: Facilities, Infrastructure and Services

Plant Area: Protected

System/Building/Equipment: 9998

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 September 11, 2013, an electrical worker discovered an unexpected voltage while performing an absence of voltage check on a light fixture as Facilities, Infrastructure and Services electrical personnel were performing a lighting fixture upgrade project. There were no exposed conductors or contact with a voltage source. The identified circuits had been locked out using an equipment-specific lockout/tagout (LOTO) and control tags were applied. The LOTO confirmation of isolation portion was signed out of sequence, before the actual verification of absence of voltage at the point of work. Only visual confirmation had been performed on the lighting as the circuits were turned off. No personnel were injured and no equipment damage occurred. The unexpected voltage source was identified and safely secured.

Similar OR Report Number:

Facility Manager:

Name	M.D. Johnson
Phone	(865) 574-0158
Title	Maintenance Center Manager

Originator:

Name	BRYNESTAD, ASTRID
Phone	(865) 574-1566
Title	OCCURRENCE REPORTING ADMINISTRATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/11/2013	18:45 (ETZ)	A. Brynestad	BS&PA
09/11/2013	18:50 (ETZ)	Duty Fac Rep	NPO
09/11/2013	18:50 (ETZ)	L.R. Bauer	FI&S
09/11/2013	18:50 (ETZ)	R. Williams	Prod Fac
09/11/2013	18:52 (ETZ)	J.N. Wyatt	PSS
09/11/2013	19:59 (ETZ)	A.S. Dull	NPO

Authorized Classifier(AC): C.J. Schermerhorn Date: 10/14/2013

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7)Report Number: NE-ID--BEA-ATR-2013-0032 **After 2003 Redesign**
Secretarial Office: Nuclear Energy, Science and Technology
Lab/Site/Org: Idaho National Laboratory
Facility Name: Advanced Test Reactor
Subject/Title: Subcontractor Bypasses Work Control and Lockout/Tagout (LO/TO) Processes at the Advanced Test Reactor (ATR)
Date/Time Discovered: 09/09/2013 16:00 (MTZ)
Date/Time Categorized: 09/09/2013 16:15 (MTZ)
Report Type: Notification/Final
Report Dates:

Notification	09/11/2013	18:04 (ETZ)
Initial Update	09/11/2013	18:04 (ETZ)
Latest Update	09/11/2013	18:04 (ETZ)
Final	09/11/2013	18:04 (ETZ)

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

Cause Codes:
ISM: 4) Perform Work Within Controls
Subcontractor Involved: Yes
Ashland Chemical Company
Occurrence Description: On 9 September 2013, at approximately 1000, subcontractor representatives for the Ashland Chemical Company came to the ATR to gather data from the Ashland On Guard water monitoring unit (test equipment that Ashland installed to collect data for chemistry control of the ATR secondary system). While collecting data, the Ashland representatives determined the monitoring unit needed to be adjusted and, without informing anyone in Operations, opened the main power breaker on the front of the unit and unplugged the unit power cord from the 480 V welding receptacle. After adjustments were made, the monitoring unit

	would not power up and the Ashland representatives requested assistance from the control room supervisor, who sent a process operator to determine what the representatives needed. The process operator found the Ashland representatives with two blown fuses and, believing they had approval to work on their equipment, helped them obtain replacement fuses. With the monitoring unit still de-energized, the fuses were replaced and the unit was powered on. When informed of the actions that had been taken, the Shift Supervisor immediately stopped work as he had not authorized any work to be done on the Ashland on guard water monitoring unit. At no time were the Ashland employees exposed to a hazardous energy source.
Cause Description:	
Operating Conditions:	The Advanced Test Reactor was operating at nominal full power for the Cycle 154B-1
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s):	Appropriate levels of BEA management and DOE-ID were notified of this event. Upon notification that fuses had been replaced in the On Guard water monitoring unit, the ATR Shift Supervisor immediately stopped work and informed the Ashland Chemical employees they were to do no more work on the unit as the SS had not authorized any work to be done on the water monitoring unit. A critique was held on 10 September 2013. It was determined that there have been numerous personnel turnovers at Ashland Chemical Company and new Ashland employees are unfamiliar with INL requirements and work processes causing a breakdown in contractor interface with INL to meet the work control process. All contractor and vendor work at the ATR Complex must have ATR Operations Management approval prior to starting work for the day to ensure contract personnel are complying with work process requirements.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	ATR Programs
Plant Area:	Cooling Tower

System/Building/Equipment: TRA-671 Cooling Tower, On Guard Water Monitor
Facility Function: Category "A" Reactors
Corrective Action:
Lessons(s) Learned:
HQ Keywords: 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance
11G--Other - Subcontractor
12I--EH Categories - Lockout/Tagout (Electrical or Mechanical)
14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency

HQ Summary: On September 9, 2013, while subcontractors for the Ashland Chemical Company were collecting data from the water monitoring unit they had installed, they determined that the monitoring unit needed to be adjusted and, without notifying Operations, opened the main power breaker on the front of the unit and unplugged the unit power cord from the 480-volt welding receptacle. After adjustments were made, the monitoring unit would not power up and the subcontractors requested assistance from the control room supervisor, who sent out a process operator. The process operator found the Ashland representatives with two blown fuses and, believing they had approval to work on their equipment, helped them replace the fuses and powered on the monitoring. When informed of the actions that had been taken, the Shift Supervisor immediately stopped all work.

Similar OR Report Number:

Facility Manager:

Name	Hill, Shawn Ashley
Phone	(208) 533-4128
Title	ADVANCED TEST REACTOR OP. FACILITY M

Originator:

Name	OWENS, MARJORIE A
Phone	(208) 533-4563
Title	ATR OPERATIONS FACILITY ADMINISTRATI

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/09/2013	16:15 (MTZ)	J. Duplessis	DOE-ID

Authorized Classifier(AC): Jeffrey . Garner Date: 09/11/2013

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8)Report Number: NE-ID--BEA-FCF-2013-0002 **After 2003 Redesign**
Secretarial Office: Nuclear Energy, Science and Technology

Lab/Site/Org: Idaho National Laboratory
Facility Name: Fuel Conditioning Facility
Subject/Title: FCF SERA Transfer Cart Cable Damage
Date/Time Discovered: 09/25/2013 11:30 (MTZ)
Date/Time Categorized: 09/26/2013 11:10 (MTZ)
Report Type: Notification
Report Dates:

Notification	09/30/2013	13:34 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 2
Reporting Criteria: 10(3) - A near miss to an otherwise ORPS reportable event, where something physically happened that was unexpected or unintended, or where no or only one barrier prevented an event from having a reportable consequence.
The significance category assigned to the near miss must be based on an evaluation of the potential risks and extent of personnel exposure to the hazard. (1 of 3 criteria - This is a SC 2 occurrence)

Cause Codes:
ISM: 2) Analyze the Hazards
3) Develop and Implement Hazard Controls
4) Perform Work Within Controls
Subcontractor Involved: No
Occurrence Description: During movement of the basement transfer cart, the transfer cart quit moving. Investigation showed the power cable for the cart had been run over and damaged. Prior to opening, locking, and tagging the cart disconnect switch, the potentially energized and damaged cable was rolled up and put in its storage location.
Cause Description:
Operating Conditions: Argon Cell Operations Mode
Activity Category: Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s): Upon discovering the transfer cart power cable had been run over, the technician notified his supervisor. The technician then unplugged, rolled up, and stored the power cable. Notifications were made to the Shift Supervisor who had the power supply disconnect open, locked, and tagged out-of-service. Notifications were made to management.
FM Evaluation: Disciplined operations are essential in the nuclear industry. The procedure wasn't out and being used, as required for a type 2 procedure. The procedure has a warning stating to ensure the track is clear prior to

	movement. When an abnormal condition is encountered, it is imperative we learn to stop work and get supervision involved. The technician potentially put himself at risk by rolling up and storing a damaged power cord that could have been energized.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Charles Posegate By When:
Division or Project:	Spent Fuels Processing
Plant Area:	FCF Bldg. 765
System/Building/Equipment:	SERA Equipment/765/Basement Transfer Cart
Facility Function:	Reprocessing
Corrective Action 01:	**Target Completion Date:** **Tracking ID:**IO-029750 1) Need a post job review on the lift. 2) Determine if we have the right standards applied for proficiency 3) Evaluate the current implementation of the PIC Process at MFC 4) Evaluate requiring that procedures to be used are present at the pre-job brief. 5) FCF conduct a stand down process with a focus on the following: Pre-job brief Procedure use 3-way Communication Error precursors Event response Human Error Production mindset Establish tools for lack of proficiency Evaluate Implementation of the PIC process 6) Investigate cause of electrical fault. 7) Investigate engineer control for electrical design of cart cord. 8) Lesson Learned.
Lessons(s) Learned:	A lessons learned will be developed for distribution.
HQ Keywords:	01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance 07D--Electrical Systems - Electrical Wiring 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical) 12K--EH Categories - Near Miss (Could have been a serious injury or fatality) 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On September 25, 2013, while a technician was moving a transfer cart, the transfer cart quit moving. The technician discovered that the transfer cart power cable had been run over and notified his supervisor. The technician then unplugged, rolled-up, and stored the power cable then notified his supervisor. The power supply was tagged out-of-service. The technician potentially put himself at risk by rolling up and storing a damaged power cord that could have been energized.

Similar OR Report Number:

Facility Manager:

Name	BOWEN, VINCE M
Phone	(208) 533-8069
Title	FCF NUCLEAR FACILITY MANAGER

Originator:

Name	BELCHER, ROBERT B.
Phone	(208) 533-7715
Title	SR. STAFF SPECIALIST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/25/2013	14:00 (MTZ)	William Watson	DOE-ID

Authorized Classifier(AC): Jeffrey Garner Date: 09/30/2013

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9)Report Number: NE-ID--BEA-HFEF-2013-0003 **After 2003 Redesign**

Secretarial Office: Nuclear Energy, Science and Technology

Lab/Site/Org: Idaho National Laboratory

Facility Name: Hot Fuel Examination Facility

Subject/Title: Inadvertent Contact with an Uncontrolled Electrical Hazardous Energy Source-120v

Date/Time Discovered: 09/25/2013 13:20 (MTZ)

Date/Time Categorized: 09/25/2013 14:00 (MTZ)

Report Type: Notification

Report Dates:

Notification	09/26/2013	14:14 (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:	
Subcontractor Involved:	No
Occurrence Description:	In the HFEF Radcon field office, at approximately 1320, while preparing for a pneumatic transfer to a glove box, a Health Physics Technician inadvertently contacted an exposed electrical circuit. The employee was installing a radiological meter probe to the transfer piping when his left arm contacted an electrical switch associated with the pneumatic transfer system circuitry resulting in a shock of 120 volts. The exposed electrical circuitry was not readily visible and was in use for at least the past 25 years without any known alteration that may have resulted in this condition.
Cause Description:	
Operating Conditions:	Does not apply
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s):	The associated work was stopped. The employee was escorted to medical, no injury could be detected. The area has been roped and posted to mitigate the exposed electrical hazard. The circuit has also been de-energized and controlled with a configuration control lock.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	Battelle Energy Alliance
Plant Area:	MFC-785 HFEF
System/Building/Equipment:	Pneumatic Transfer System
Facility Function:	Laboratory - Research & Development
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	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 September 25, 2013, while preparing for a pneumatic transfer to a glove box in the Hot Fuel Examination Facility, a Health Physics Technician inadvertently contacted an exposed electrical circuit. The

technician was installing a radiological meter probe to the transfer piping when his left arm contacted an electrical switch associated with the pneumatic transfer system circuitry resulting in a shock of 120 volts. The exposed electrical circuitry was not readily visible and was in use for at least the past 25 years without any known alteration that may have resulted in this condition. The associated work was stopped. The technician was escorted to medical, no injury could be detected. The area has been roped off and the circuit has been de-energized and controlled with a configuration control lock.

Similar OR Report Number:

Facility Manager:

Name	KYNASTON, KELLY L
Phone	(208) 533-7680
Title	HOT FUELS EXAMINATION FACILITY ASSIS

Originator:

Name	KYNASTON, KELLY L
Phone	(208) 533-7680
Title	HOT FUELS EXAMINATION FACILITY ASSIS

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/25/2013	13:34 (MTZ)	R. McCarthy	DOEID-FR

Authorized Classifier(AC): Jeff Garner Date: 09/26/2013

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10)Report Number: SC--SSO-SU-SLAC-2013-0011 **After 2003 Redesign**
Secretarial Office: Science
Lab/Site/Org: Stanford Linear Accelerator Center
Facility Name: SLAC National Accelerator Laboratory
Subject/Title: LOTO Procedures not Implemented by Sub Contractor
Date/Time Discovered: 09/06/2013 14:45 (PTZ)
Date/Time Categorized: 09/09/2013 10:00 (PTZ)
Report Type: Notification/Final
Report Dates:

Notification	09/11/2013	13:16 (ETZ)
Initial Update	09/11/2013	13:16 (ETZ)
Latest Update	09/11/2013	13:16 (ETZ)
Final	09/11/2013	13:16 (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
5) Provide Feedback and Continuous Improvement

Subcontractor Involved: Yes
Stanford University (SU) Hospitality Services

Occurrence Description: During a field walk around on 9/6/13 a SLAC Field Safety Representative (FSR) observed that removal of the SLAC Cafeteria furnishings, which closed on 8/30/13 in preparation for demolition later this year, had occurred. Through the windows the FSR observed that there was an electrical wire left in an unacceptable condition (e.g., wiring not contained within electrical boxes). The cafeteria had been operated by Stanford University (SU) Hospitality Services. At the time of discovery no SU workers were present and the doors to the Cafeteria were locked. Upon further inquiry it was found that the unauthorized work had been performed earlier in the week by SU Hospitality Services subcontractors. The work included disconnecting and removing hard-wired 120V/208V equipment. It appears that this work was performed with the electrical circuits de-energized but not locked out in accordance with OSHA, NFPA 70E, DOE, and SLAC requirements. Several immediate actions were taken to put the building in a safe condition including the application of SLAC Lockout Tagout, positive control of the building to single point authority for access, and site wide extent of condition to ensure no other similar situation exists. An investigation is underway.

Cause Description:

Operating Conditions: Cafeteria was closed and subcontractors were removing hardwired electrical equipment.

Activity Category: Facility Decontamination/Decommissioning

Immediate Action(s): Several immediate actions were taken to put the building in a safe condition including the application of SLAC Lockout Tagout, positive control of the building to single point authority for access, and site wide extent of condition to ensure no other similar situation exists. An investigation is underway.

FM Evaluation:

DOE Facility Representative Input:

DOE Program Manager Input:

Further Evaluation is No

Required:

Division or Project: I&S Management & Admin

Plant Area: Bdg 042

System/Building/Equipment: 120V/208V equipment

Facility Function: Accelerators

Corrective Action:

Lessons(s) Learned:

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

HQ Summary: On September 9, 2013, during a field walk around, a SLAC Field Safety Representative observed that the closed cafeteria, in preparation for demolition, had an electrical wire left in an unacceptable condition (e.g., wiring not contained within electrical boxes). Upon further inquiry, it was found that unauthorized work had been performed earlier in the week by subcontractors for Stanford University Hospitality Services, who operated the cafeteria. The work included disconnecting and removing hard-wired 120/208-volt equipment. It appears that this work was performed with the electrical circuits de-energized but not locked out in accordance with OSHA, NFPA 70E, DOE, and SLAC requirements. Immediate actions were taken to put the building in a safe condition and an investigation is underway.

Similar OR Report Number:

Facility Manager:

Name	Simon Ovrahim
Phone	(650) 926-2310
Title	FMD_ Security Program Manager

Originator:

Name	MCDANIEL, MIKE C.
Phone	(650) 926-5015
Title	NTS COORDINATOR AND SECOND ORPS MANA

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/06/2013	18:10 (PTZ)	John Saidi	SSO

Authorized Classifier(AC):

11)Report Number: SC--TJSO-JSA-TJNAF-2013-0007 **After 2003 Redesign**
Secretarial Office: Science
Lab/Site/Org: Thomas Jefferson National Accelerator Site
Facility Name: Thomas Jefferson Nat'l Accelerator
Subject/Title: ENG-13-0913 High Voltage Cable Arcing in the Tunnel
Date/Time Discovered: 09/13/2013 16:15 (ETZ)
Date/Time Categorized: 09/17/2013 09:06 (ETZ)
Report Type: Notification
Report Dates:

Notification	09/18/2013	17:02 (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
4) Perform Work Within Controls
Subcontractor Involved: No
Occurrence Description: On Friday, September 13, 2013 a worker in the accelerator tunnel heard something that sounded like the popping of an electrical arc in the South Linac, and followed the sound to a bundle of several cut wires near the overhead cable tray. The area around the arcing cable was secured until electrical power from the top-side service building was secured shortly thereafter. Upon review, the arcing coincided with power being restored earlier the same morning to Ion Pumps in the same general area of the accelerator tunnel. While the investigation is on-going, the event may be attributed to the use of a legacy high voltage cable connected to a supplemental Ion Pump power supply (5200 Volts, 70 milliamps). This particular cable remained throughout the efforts to replace all other cables in this location, a process which has been executed in different stages over the span of the long shutdown for 12 GeV upgrade project. Since the prior cable removal activities were performed under LO/TO control, the condition wasn't identified until the power to the Ion Pumps in this area was restored. A potential contributing cause or complicating factor is the Ion Pump serviced by the legacy cable and upstream high voltage power supply was not reflected on accelerator system's computer diagnostics screen (as is the case for other Ion Pumps), or reflected in the system drawings. An extent of condition review is being conducted.

Cause Description:	
Operating Conditions:	Normal Maintenance Operations
Activity Category:	Maintenance
Immediate Action(s):	1.The area in the tunnel where the arcing occurred was secured until the electrical power could be secured from top-side service building. 2.The fact finding meeting was held in the field to get a better understanding of the circumstances surrounding this event. 3.An extent of condition review is currently underway.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Harry Fanning By When:
Division or Project:	Engineering/ EESICS Group
Plant Area:	South Linac- Zone 18
System/Building/Equipment:	South Linac/ High Voltage Cable Replacements
Facility Function:	Laboratory - Research & Development
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control 04D--Instrumentation and Controls - Computer Software 07D--Electrical Systems - Electrical Wiring 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical) 12C--EH Categories - Electrical Safety 14D--Quality Assurance - Documents and Records Deficiency
HQ Summary:	On September 13, 2013, a worker in the accelerator tunnel heard something that sounded like the popping of an electrical arc in the South Linac, and followed the sound to a bundle of several cut wires near the overhead cable tray. The area around the arcing cable was secured until electrical power from the top-side service building was secured shortly thereafter. Upon review, the arcing coincided with power being restored earlier the same morning to Ion Pumps in the same general area of the accelerator tunnel. The event may be attributed to the use of a legacy high voltage cable connected to a supplemental Ion Pump power supply (5,200 volt, 70 milliamps), which remained throughout the efforts to replace all other cables in this location. A fact finding meeting was held and an extent

of condition review is currently underway.

Similar OR Report Number:

Facility Manager:

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

Originator:

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

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/13/2013	20:20 (ETZ)	Steve Neilson	TJSO

Authorized Classifier(AC): Christina Johnson Date: 09/17/2013