Office of Health, Safety and Security

Electrical Safety Report

February 2011

Electrical Safety Occurrences

The number of electrical safety events for February decreased from thirteen in January to seven. Three of these events involved electrical shocks. In the first event, a crane operator reported feeling a shock while he was operating an overhead crane using a control pendant. He felt the shock while his free hand was on a handrail and his other hand was holding the pendant control as he pressed a button. Investigators determined that when two (of six) buttons on the pendant are operated; 77 volts went to ground. In the second event, a facilities electrician received a shock while performing set-up and calibration of a gas alarm system. The electrician was holding the detector head in his right hand when his left hand brushed against foil insulation on a duct system directly under the detectors. The electrician measured approximately 109 volts AC from the detector head to a section of Unistrut that supported the ductwork. It is believed that the gas alarm controller wiring was set up incorrectly because of mislabeled terminal strips from the manufacturer. In the third event, a researcher felt an electrical shock to his hand while operating a 120-volt laboratory incubator/furnace.

This month there was one electrical penetration event. A subcontractor electrician was drilling into a wall to install a proxy card reader when the drill bit hit an energized wire inside a flexible conduit and tripped a circuit breaker. Facility electricians stabilized the hazard and placed the area in a safe condition. Also this month there was only one reported lockout/tagout (LOTO) event. A subcontractor project manager entered an administratively controlled area to inspect wire terminations, electrical switchgear, and the cleanliness of panels and components, but forgot to remove his key from his personal lock that he had installed on the LOTO lockbox. The project manager never came in contact with any equipment nor did he break the plane of the work zone.

The following table shows a breakdown of the electrical safety events for February.

Number of Events	Involving:
3	Electrical Shocks
0	Electrical Burns
1	Hazardous Energy Control
0	Inadequate Job Planning
1	Inadvertent Drilling/Cutting of Electrical Conductor
0	Excavation of Electrical Conductors
1	Vehicle Intrusion of Electrical Conductors
1	Electrical Near Miss
3	Electrical Workers
4	Non-Electrical Workers
2	Subcontractors

Having only one hazardous energy control event for the month is a good sign. Although the event did not appear serious and apparently occurred because of forgetfulness, it stands as a reminder that facility personnel and subcontractors need to stay focused on the details necessary to properly implement a LOTO and follow site's hazardous energy control procedures. Workers need to remember, that it's their key, their lock, and their life. The month of May is National Electrical Safety Month and this year the EFCOG Electrical Safety Task Group will be actively working to increase everyone's awareness of hazardous energy control and the LOTO process. The slogan is "When in Doubt, Lock it out!"

In compiling the monthly totals, the search initially looked for occurrence discovery dates in this month (excluding Significance Category R 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

Using the key words above, eight events were identified. However, event EM-RL--CPRC-GPP-2011-0001 was culled out because the event actually took place in January 2011 and that event was included in the January report.

Below is the current summary of 2011 electrical safety occurrences:

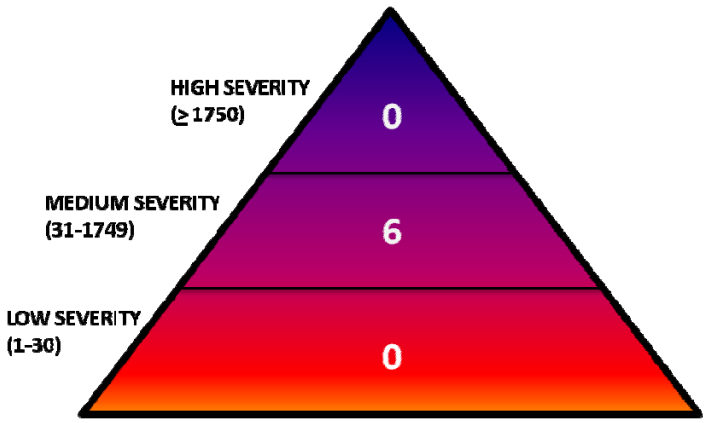
Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
February	7	3	0	0
January	13	3	1	0
2011 total	20 (avg. 10/month)	6	1	0
2010 total	155 (avg. 12.9/month)	28	2	0
2009 total	128 (avg. 10.7/month)	25	3	0
2008 total	113 (avg. 9.4/month)	26	1	0
2007 total	140 (avg. 11.7/month)	25	2	0
2006 total	166 (avg. 13.8/month)	26	3	0
2005 total	165 (avg. 13.8/month)	39	5	0
2004 total	149 (avg. 12.4/month)	25	3	1

The monthly average for 2011 is just slightly lower than the monthly average for the 2009 calendar year.

Electrical Severity Scores

Continue to evaluate electrical events using the Electrical Severity Measurement Tool. The electrical severity scores are calculated using Revision 2 of the Electrical Severity Measurement Tool, which was released October 20, 2010.

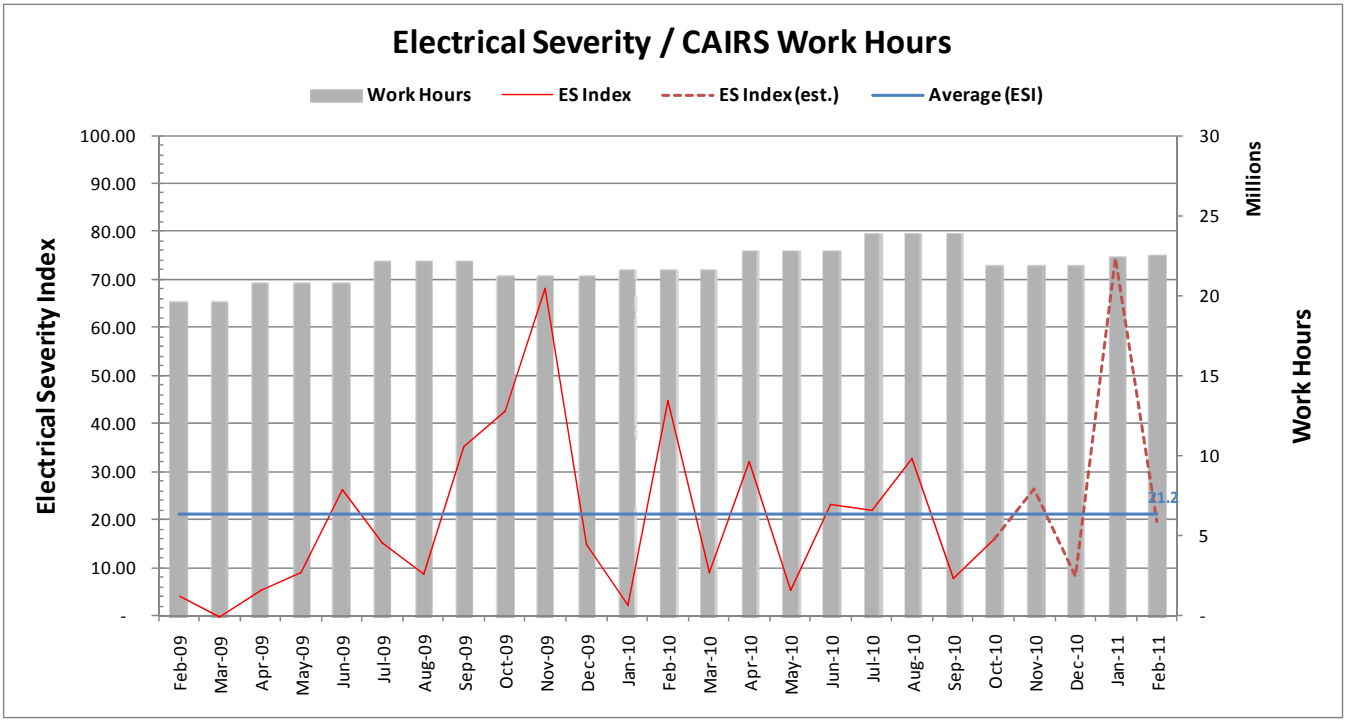
One of the electrical events was determined to have no Electrical Severity (ES) score. The other six events were distributed as shown in the triangle, with the highest ES score being 1050. The actual score for each event is provided in the event tables.



Number of Events with an ES Score

Electrical Severity Index

The following chart shows a calculated Electrical Severity Index (ESI) for the DOE complex.



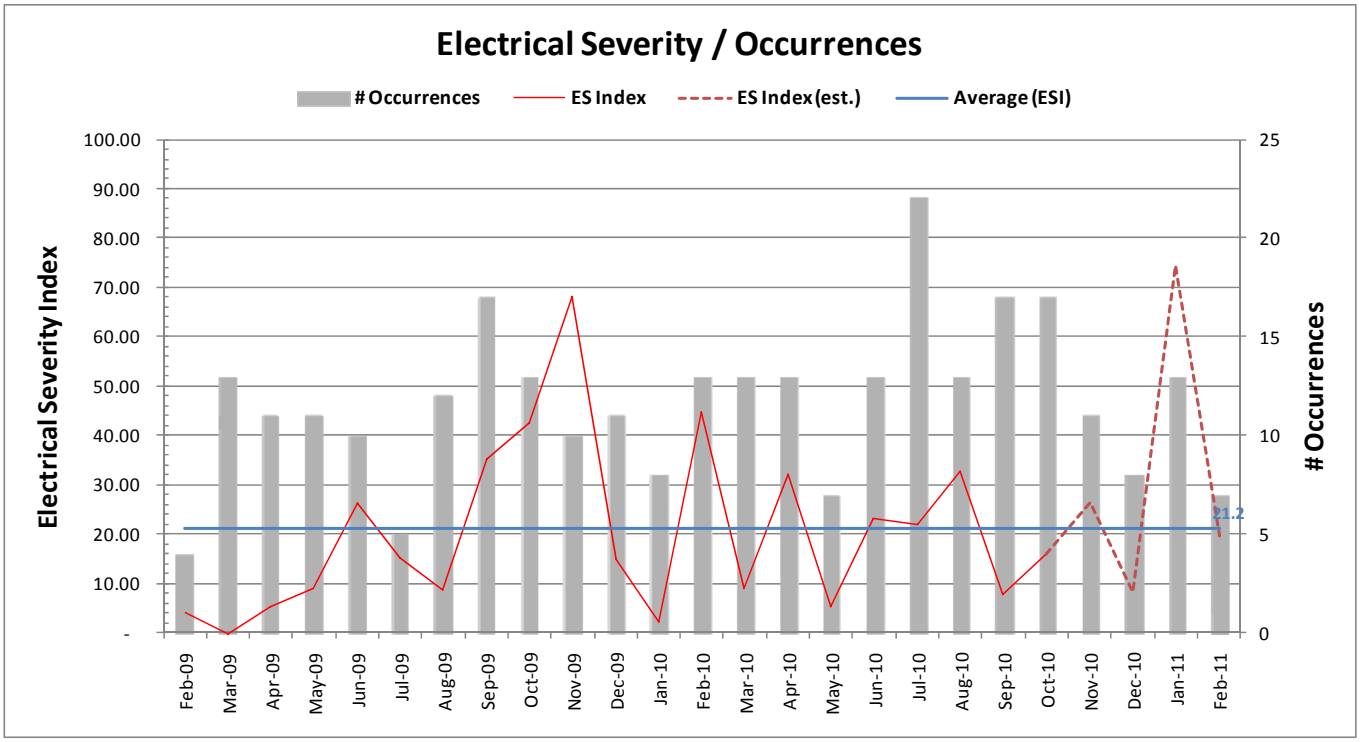
Note: An estimated ESI is calculated until accurate CAIRS man-hours are available. The chart will be updated monthly.

Category	January	February	Δ
Total Occurrences	13	7	-6
Total Electrical Severity	8,350	2,210	-6,140
Estimated Work Hours	22,435,554* (22,435,554)	22,517,197	+81,643
ES Index	74.44* (74.44)	19.63	-54.81
Average ESI	21.2	21.2	0

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

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

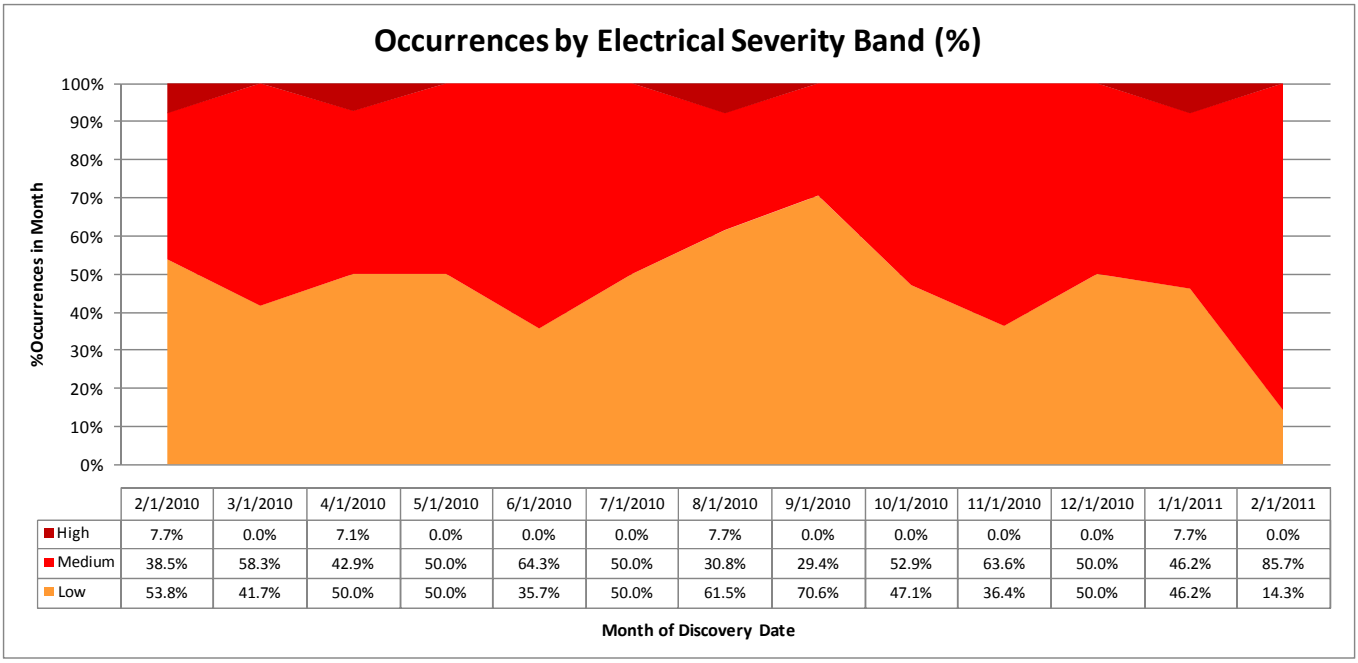
The following chart shows ESI with the number of Occurrences instead of work hours.



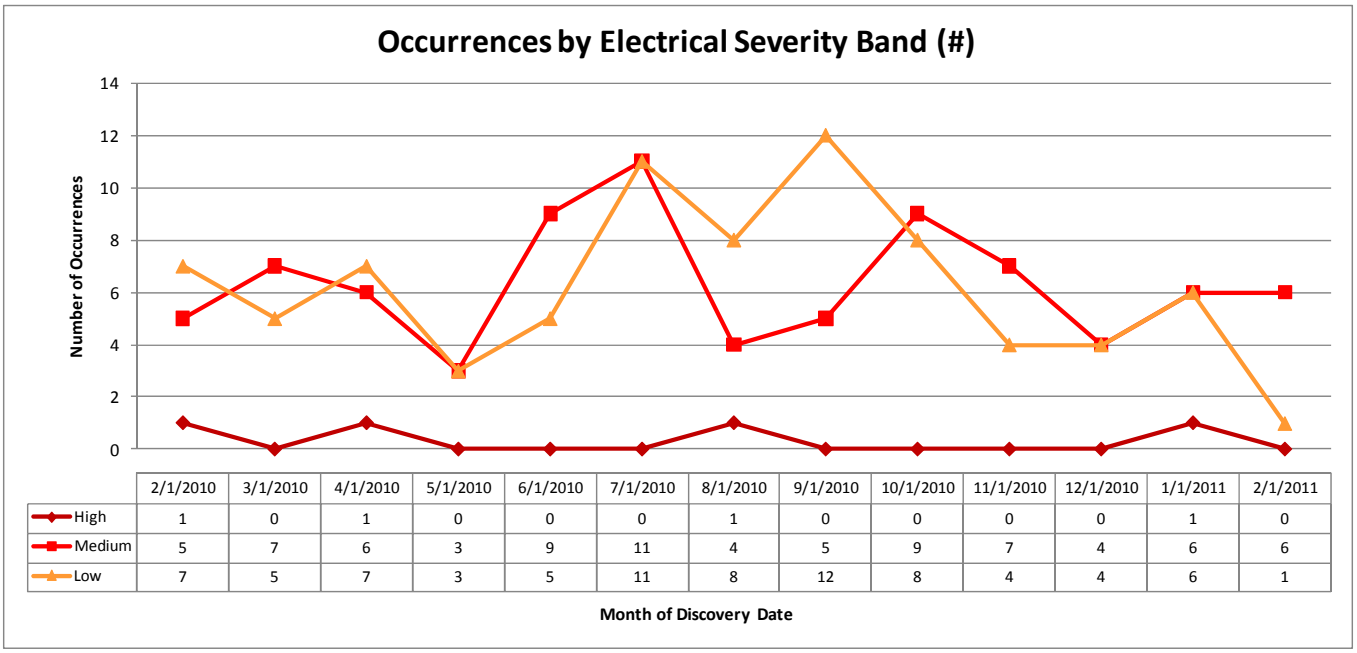
Summary of Occurrences by Severity Band

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

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



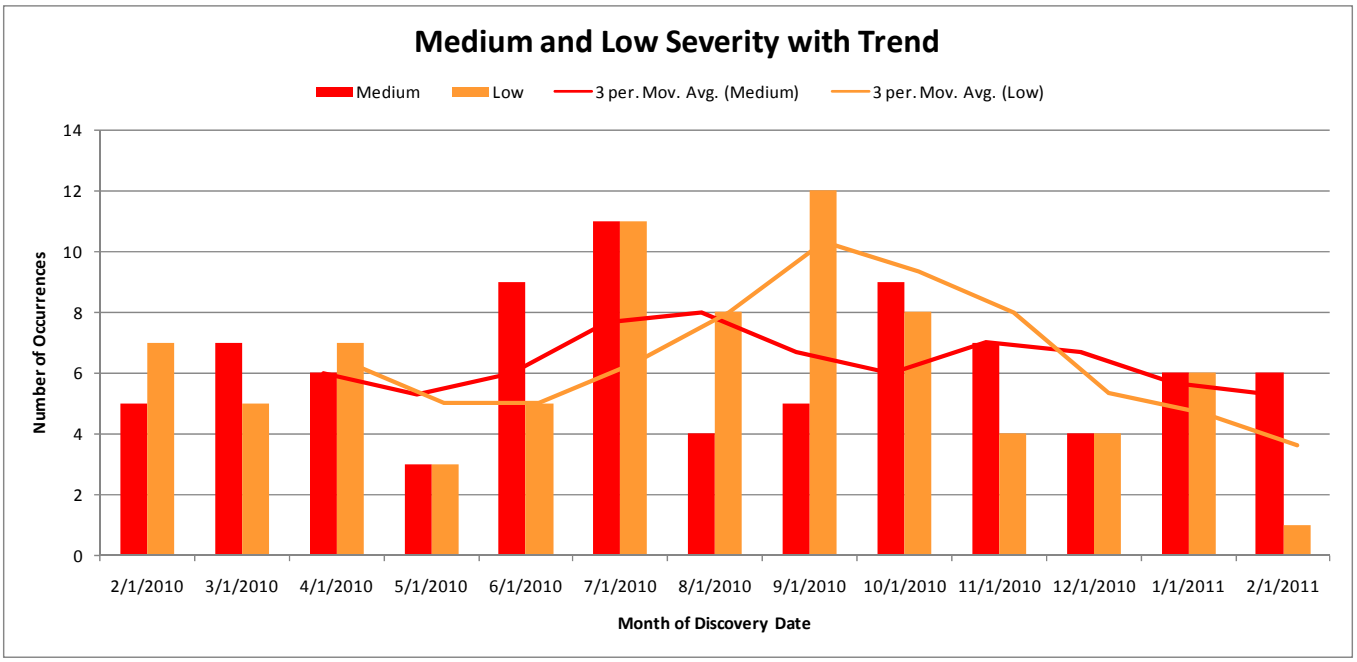
	2/1/2010	3/1/2010	4/1/2010	5/1/2010	6/1/2010	7/1/2010	8/1/2010	9/1/2010	10/1/2010	11/1/2010	12/1/2010	1/1/2011	2/1/2011
High	7.7%	0.0%	7.1%	0.0%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%
Medium	38.5%	58.3%	42.9%	50.0%	64.3%	50.0%	30.8%	29.4%	52.9%	63.6%	50.0%	46.2%	85.7%
Low	53.8%	41.7%	50.0%	50.0%	35.7%	50.0%	61.5%	70.6%	47.1%	36.4%	50.0%	46.2%	14.3%

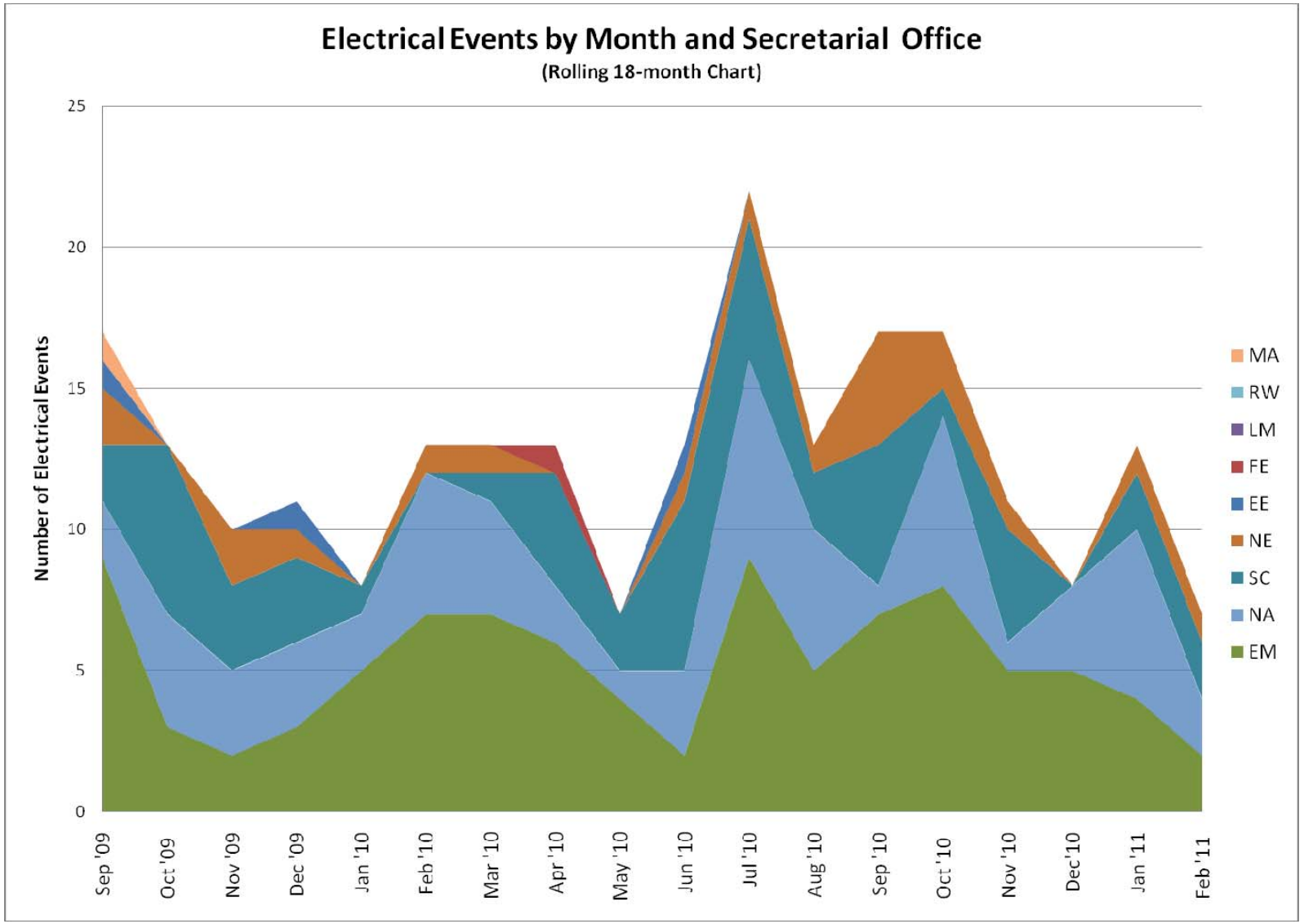


	2/1/2010	3/1/2010	4/1/2010	5/1/2010	6/1/2010	7/1/2010	8/1/2010	9/1/2010	10/1/2010	11/1/2010	12/1/2010	1/1/2011	2/1/2011
High	1	0	1	0	0	0	1	0	0	0	0	1	0
Medium	5	7	6	3	9	11	4	5	9	7	4	6	6
Low	7	5	7	3	5	11	8	12	8	4	4	6	1

Medium and Low Severity with Trend

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





EE - Energy Efficiency and Renewable Energy, EM - Environmental Management, FE - Fossil Energy, LM - Legacy Management, MA - Management, NA - National Nuclear Security Administration, NE - Nuclear Energy, SC - Science

Electrical Safety Occurrences – February 2011

No	Report Number	Event Summary	SHOCK	BURN	ARCF[1]	LOTO[2]	PLAN[3]	EXCAV[4]	CUT/D[5]	VEH[6]	SC[7]	RC[8]	ES[9]
1	EM-RL--WCH-DND-2011-0001	A crane operator received a 77V electrical shock while operating a crane pendant control.	X								2	2C(1)	330
2	EM-RP--WRPS-TANKFARM-2011-0003	An electrician drilled into a wall to install a card reader and contacted an energized wire.							X		3	2C(2)	110
3	NA--SS-SNL-CASITE-2011-0001	An electrician received a 109V shock from an incorrectly wired terminal block for a controller.	X								2	2C(1)	330
4	NA--SS-SNL-NMFAC-2011-0003	An electrician discovered 120V cord with an energized male end.									4	10(3)	60
5	NE-ID--BEA-MFC-2011-0002	Worker failed to remove key from applied LOTO.				X					3	2C(2)	0
6	SC--ASO-ANLE-ANLEFMS-2011-0001	A frontend loader clearing snow struck a buried post that supported a 120V electrical receptacle.								X	4	10(2)	1050
7	SC--PNSO-PNNL-PNNLBOPER-2011-0001	A researcher felt an electrical shock to his hand while operating a 120V laboratory incubator.	X								2	2C(1)	330
	TOTAL		3	0	0	1	0	0	1	1			

Key

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

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

Electrical Safety Occurrences – February 2011

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	EM-RL--WCH-DND-2011-0001	A crane operator received a 77V electrical shock while operating a crane pendant control.		X		X					X			
2	EM-RP--WRPS-TANKFARM-2011-0003	An electrician drilled into a wall to install a card reader and contacted an energized wire.	X		X	X					X			
3	NA--SS-SNL-CASITE-2011-0001	An electrician received a 109V shock from an incorrectly wired terminal block for a controller.	X			X					X			
4	NA--SS-SNL-NMFAC-2011-0003	An electrician discovered 120V cord with an energized male end.	X				X				X			X
5	NE-ID--BEA-MFC-2011-0002	Worker failed to remove key from applied LOTO.		X	X		X				X			
6	SC--ASO-ANLE-ANLEFMS-2011-0001	A frontend loader clearing snow struck a buried post that supported a 120V electrical receptacle.		X		X					X			
7	SC--PNSO-PNNL-PNNLBOPER-2011-0001	A researcher felt an electrical shock to his hand while operating a 120V laboratory incubator.		X		X					X			
	TOTAL		3	4	2	5	2	0	0	0	7	0	0	1

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 55078 OR(s) with 58388 occurrences(s) as of 3/2/2011 11:35:21 AM
Query selected 7 OR(s) with 7 occurrences(s) as of 3/2/2011 12:31:46 PM

Download this report in Microsoft Word format.

1)Report Number:	EM-RL--WCH-DND-2011-0001 **After 2003 Redesign**
Secretarial Office:	Environmental Management
Lab/Site/Org:	Hanford Site
Facility Name:	Decontamination & Decommissioning
Subject/Title:	Employee Feels A Shock From Crane's Control Pendant
Date/Time Discovered:	02/08/2011 15:15 (PTZ)
Date/Time Categorized:	02/08/2011 15:50 (PTZ)
Report Type:	Notification
Report Dates:	Notification 02/10/2011 17:58 (ETZ) Initial Update Latest Update Final
Significance Category:	2
Reporting Criteria:	2C(1) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or disturbance of a previously unknown or mislocated hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas) resulting in a person contacting (burn, shock, etc.) hazardous energy.
Cause Codes:	
ISM:	
Subcontractor Involved:	No
Occurrence Description:	At 100N Area, for approximately 6 hours of work in the 182N building, a crane operator operated an overhead crane using a control pendant. In an attempt to improve his view, the crane operator changed his position and approached a metal guard rail. He placed his free hand on the top rail, while the other hand held the crane's control pendant. The crane operator reported feeling electrical current when he grabbed the handrail while pressing a control button on the pendant. The crane operator was taken for medical evaluation and was returned to work without injury or restrictions. The preliminary investigation has determined that when two (of six) buttons on the pendant are operated, 77 volts of electricity can move to ground. The source of the errant electricity was not been determined and further evaluation is under way. The crane and pendant have been taken

	out of service pending the electrical evaluation. As a result of the preliminary investigation, project management suspended the use of pendant controlled cranes. This information was given to all WCH projects and other prime contractors on the Hanford site.
Cause Description:	
Operating Conditions:	Does not apply.
Activity Category:	Facility Decontamination/Decommissioning
Immediate Action(s):	Notified emergency responders and transported the operator for medical evaluation. Secured the building and began investigation with electricians. Suspended all crane work using pendent controls. Scheduled a fact finding
FM Evaluation:	This event was initially an SC3 event. However, after the electrician's preliminary investigation discovered 77 volts could move to ground when two buttons were operated and the crane operator reported being shocked; project management up graded this to an SC2 event at 0805 hours on 2/9/2011. The crane will be evaluated by electricians to determine the source of the errant electricity.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: WCH Electricians By When:
Division or Project:	D4 Operations
Plant Area:	100N
System/Building/Equipment:	Trolley Crane Pendant
Facility Function:	Environmental Restoration Operations
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	07D--Electrical Systems - Electrical Wiring 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock 12C--EH Categories - Electrical Safety 14L--Quality Assurance - No QA Deficiency
HQ Summary:	On February 11, 2011, at the 100N Area in Building 182N, a crane operator reported feeling an electrical shock while he was operating an overhead crane using a control pendant. In an attempt to improve his view, the crane operator had changed his position and approached a metal guard

	rail. He then placed his free hand on the top rail, while his other hand held the crane's control pendant. The crane operator reported feeling an electrical shock when he grabbed the handrail and pressed a control button on the pendant. The crane operator was taken for medical evaluation and was released without injury or work restrictions. The preliminary investigation has determined that when two (of six) buttons on the pendant are operated, that 77 volts of electricity can move to ground. The source of the errant electricity has not been determined and further evaluation is underway. The crane and pendant have been taken out of service pending an electrical evaluation. As a result of the preliminary investigation, project management suspended the use of pendant controlled cranes. This information was given to all WCH projects and other prime contractors on the Hanford site.
Similar OR Report Number:	
Facility Manager:	Name: SMITH, BOBBY Phone: (509) 372-9411 Title: DIRECTOR, D4 OPERATIONS
Originator:	Name: TELLER, DONALD S Phone: (509) 372-9722 Title: OCCURRENCE INVESTIGATOR
HQ OC Notification:	Date: NA; Time: NA; Person Notified: NA; Organization: NA
Other Notifications:	Date: 02/08/2011; Time: 15:31 (PTZ); Person Notified: Deanne McCranie; Organization: DOE FR Date: 02/08/2011; Time: 15:40 (PTZ); Person Notified: Gary Trump; Organization: DOE ONC
Authorized Classifier(AC):	

2)Report Number:	EM-RP--WRPS-TANKFARM-2011-0003 **After 2003 Redesign**
Secretarial Office:	Environmental Management
Lab/Site/Org:	Hanford Site
Facility Name:	Tank Farms
Subject/Title:	A Mission Support Alliance Electrician Contacts Energized Wire Installing Proxy Door Lock System
Date/Time Discovered:	02/09/2011 16:20 (PTZ)
Date/Time Categorized:	02/09/2011 16:25 (PTZ)
Report Type:	Notification
Report Dates:	Notification: 02/11/2011 15:32 (ETZ) Initial Update:

	Latest Update		
	Final		
Significance Category:	3		
Reporting Criteria:	2C(2) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.		
Cause Codes:			
ISM:	2) Analyze the Hazards 3) Develop and Implement Hazard Controls		
Subcontractor Involved:	Yes Mission Support Alliance, LLC		
Occurrence Description:	Per the established Memorandum of Agreement (MOA-00001) for the performance and payment of services between Mission Support Alliance (MSA) and Washington River Protection Solutions (WRPS), WRPS is filing this occurrence on behalf of MSA. In accordance with site contracts, including the MOA, the MSA has the responsibility to perform facility maintenance for various office buildings in owner occupied facilities, which includes facilities owned by WRPS, utilizing MSA's work control procedures and supervision. Per this contract, WRPS requested MSA install a proxy door lock system at Mobile Office (MO) 598 in the 200 East Area. On the afternoon of February 08, 2011, the MSA dispatched an electrician to install the proxy card system. The electrician needed to mount the card reader near the entrance which they planned to do by drilling and mounting the card reader. During the installation of the card reader's low-voltage cabling, the electrician drilled into the single top plate and contacted an energized wire located in flexible conduit tripping a circuit breaker. According to MSA management, no electrical shock or injury occurred as a result. MSA made no notification of the incident to the facility owner until February 09, 2011. Upon discovery, the WRPS facility owner dispatched WRPS electricians to stabilize the hazard and placed the area in a safe condition. WRPS management has requested the suspension of all installation of proxy door lock systems until the results of event investigation, conducted by MSA, is provided to and evaluated by WRPS for adequacy.		
Cause Description:			
Operating Conditions:	Does not apply.		
Activity Category:	Maintenance		

Immediate Action(s):	The hazard was stabilized and the area placed in a safe configuration. Further installation of proxy door lock systems has been suspended.
FM Evaluation:	Further installation of proxy door lock systems has been suspended pending review of Mission Support Alliance's event investigation results.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? Yes By Whom: Farner, Monte L By When: 03/26/2011
Division or Project:	Washington River Protection Solutions, LLC (WRPS)
Plant Area:	200 East
System/Building/Equipment:	Proxy Door Locks/MO-598/Card Reader and Striker Plate
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 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency 14G--Quality Assurance - Procurement Deficiency
HQ Summary:	On February 8, 2011, a Mission Support Alliance (MSA) electrician, performing facility maintenance for Washington River Protection Solutions (WRPS) in accordance with site contracts, was drilling into a wall to install a proxy card reader when the drill bit contacted an energized wire located in flexible conduit, resulting in the tripping of a circuit breaker. There was no electrical shock or injury. The WRPS facility owner was not notified of the incident until February 9, when WRPS electricians were dispatched to stabilize the hazard and place the area in a safe condition. WRPS management has requested the suspension of all installation of proxy door lock systems until the results of the event investigation, conducted by MSA, is provided to and evaluated by WRPS for adequacy.
Similar OR Report Number:	
Facility Manager:	Name: Farner, Monte L Phone: (509) 373-0920 Title: Manager, Facility and Property Management

Originator:	Name: WATERS, SHAUN F Phone: (509) 373-3457 Title: OPERATIONS SPECIALIST
HQ OC Notification:	Date: NA, Time: NA, Person Notified: NA, Organization: NA
Other Notifications:	02/09/2011 16:25 (PTZ) Wilkinson, R. E. WRPS 02/09/2011 16:25 (PTZ) Moser, D. R. WRPS 02/09/2011 16:30 (PTZ) Stickney, B. J. DOE-ORP 02/09/2011 16:32 (PTZ) Boyce, M. L. MSA-ONC
Authorized Classifier(AC):	

3)Report Number:	NA--SS-SNL-CASITE-2011-0001 **After 2003 Redesign**
Secretarial Office:	National Nuclear Security Administration
Lab/Site/Org:	Sandia National Laboratories - Livermore
Facility Name:	SNL California Site
Subject/Title:	Error in Manufacturer Wiring Results in Electrical Shock in Bldg. B965
Date/Time Discovered:	02/14/2011 11:29 (PTZ)
Date/Time Categorized:	02/14/2011 13:29 (PTZ)
Report Type:	Notification
Report Dates:	Notification: 02/15/2011 17:14 (ETZ) Initial Update Latest Update Final
Significance Category:	2
Reporting Criteria:	2C(1) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or disturbance of a previously unknown or mislocated hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas) resulting in a person contacting (burn, shock, etc.) hazardous energy.
Cause Codes:	
ISM:	
Subcontractor Involved:	No
Occurrence Description:	On the afternoon of February 14, 2011, a facilities electrician received and reported an electrical shock while performing set-up and calibration of a Gas Alarm System in B965. Due to the availability of resources, the

	Electrical Severity Index was calculated on February 14, 2011 and Sandia management determined at that time that, based on the calculated index, this event met ORPS reporting criteria. The electrician was working atop a ladder with the detector head in the right hand. The left hand brushed against the foil insulation of an overhead duct system directly under the detectors and resulted in the electrical shock. The electrician measured approximately 109 VAC from the detector head to the uni-strut supporting the duct work. Initial indication is the Gas Alarm Controller wiring was set up incorrectly due to the mis-labeling of terminal strips from the manufacturer. The manager drove the electrician to their medical provider. The electrician was treated and released, no injuries were incurred as a result of the electrical shock. The Electrical Severity Score is 330.
Cause Description:	Critique/Fact Finding Performed: 2/11/11
Operating Conditions:	Normal
Activity Category:	Facility/System/Equipment Testing
Immediate Action(s):	-Electrician powered system down and began to trouble shoot -Electrician reported electrical shock to management and was escorted/driven to their Medical provider -Electrician returned to B965 later in the evening and finished trouble shooting -Electrician contacted manufacturer and noted possible lot issues with certain controller components
FM Evaluation:	Notification: 2/10/11 - EOC - 18:39
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Causal Analysis Team By When: 03/31/2011
Division or Project:	8000/New Installation Gas Alarm System
Plant Area:	Other
System/Building/Equipment:	Mil-Ram Gas Alarm System/Bldg. B965, East Lab
Facility Function:	Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)
Corrective Action:	

Lessons(s) Learned:	
HQ Keywords:	01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control 01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock 11L--Other - Supplier 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 February 14, 2011, a facilities electrician received and reported an electrical shock while performing set-up and calibration of a gas alarm system in Building 965. The electrician was working atop a ladder with the detector head in the right hand. The left hand brushed against the foil insulation of an overhead duct system directly under the detectors and resulted in the electrical shock. The electrician measured approximately 109 volts AC from the detector head to the section of Unistrut that supported the duct work. The Electrical Severity Score is 330. Initial indication is that the gas alarm controller wiring was set up incorrectly because terminal strips from the manufacturer were mis-labeled. The manager drove the electrician to their medical provider. The electrician was treated and released. There were no injuries as a result of the electrical shock.
Similar OR Report Number:	
Facility Manager:	Name: Bob Carling Phone: (925) 294-2206 Title: Director Transportation Energy Ctr, 8300
Originator:	Name: LUCERO, JEWELEE A Phone: (505) 845-4727 Title: REPORTING ADMINISTRATOR
HQ OC Notification:	Date: NA; Time: NA; Person Notified: NA; Organization: NA
Other Notifications:	02/14/2011 13:29 (PTZ) Bob Carling 8300 02/14/2011 13:29 (PTZ) Jeff Irwin DOE/SSO
Authorized Classifier(AC):	John R. Garcia Date: 02/14/2011

4)Report Number:	NA--SS-SNL-NMFAC-2011-0003 **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:	Electrical Cord Discovered with Energized Male End of Cord at MO247
Date/Time Discovered:	02/10/2011 09:00 (MTZ)
Date/Time Categorized:	02/10/2011 10:00 (MTZ)
Report Type:	Notification/Final
Report Dates:	Notification 02/14/2011 11:41 (ETZ) Initial Update 02/14/2011 11:41 (ETZ) Latest Update 02/14/2011 11:41 (ETZ) Final 02/14/2011 11:41 (ETZ)
Significance Category:	4
Reporting Criteria:	10(3) - A near miss, where no barrier or only one barrier prevented an event from having a reportable consequence. One of the four significance categories should be assigned to the near miss, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 4 occurrence)
Cause Codes:	
ISM:	1) Define the Scope of Work 2) Analyze the Hazards 3) Develop and Implement Hazard Controls
Subcontractor Involved:	Yes Del Rio
Occurrence Description:	On February 8, 2011, a maintenance electrician discovered a multi-conductor type SO cord that was directly wired into MO247on one side and contained an energized male receptacle on the other side. The cord was wired to an outside receptacle and was a 120 volt, 20 amp circuit. The electrical contractor modified the cord to supply electrical power to the fire protection panel during a building outage. This is a code violation and had the potential to expose personnel to energized electrical parts. The electrical severity score is a 60 on this event.
Cause Description:	Critique/Fact Finding Performed: 2/10/11
Operating Conditions:	Normal
Activity Category:	Construction
Immediate Action(s):	The circuit was placed in a safe condition, an investigation is intiated.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager	

Input:	
Further Evaluation is Required:	No
Division or Project:	4800
Plant Area:	Tech Area IV
System/Building/Equipment:	Temporary Electrical Cord/MO247
Facility Function:	Balance-of-Plant - Site/outside utilities
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical) 11G--Other - Subcontractor 12K--EH Categories - Near Miss (Could have been a serious injury or fatality) 14E--Quality Assurance - Work Process Deficiency 14G--Quality Assurance - Procurement Deficiency
HQ Summary:	On February 8, 2011, a maintenance electrician discovered a multi-conductor, type SO cord that was directly wired into the MO247 facility on one side and contained an energized male receptacle on the other side. The cord was wired to an outside receptacle and was a 120-volt, 20-amp circuit. An electrical contractor had modified the cord to supply electrical power to a fire protection panel during a building outage. This is a code violation and the modification had the potential to expose personnel to energized electrical parts. The circuit was placed in a safe condition and an investigation was initiated.
Similar OR Report Number:	

Facility Manager:

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

Originator:

Name	LUCERO, JEWELEE A
Phone	(505) 845-4727
Title	REPORTING ADMINISTRATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
02/10/2011	09:40 (MTZ)	Gerry Lipka	4842
02/10/2011	09:40 (MTZ)	Bill Lucy	4021
02/10/2011	09:40 (MTZ)	Art Ratzel	4800

	02/10/2011	09:40 (MTZ)	Lynnwood Dukes	4820
	02/10/2011	09:41 (MTZ)	EOC	4136
	02/10/2011	09:50 (MTZ)	Debbie Garcia-Sanchez, FR	DOE/SSO

Authorized Classifier(AC): John Norwalk Date: 02/10/2011

---

5)Report Number: NE-ID--BEA-MFC-2011-0002 **After 2003 Redesign**

Secretarial Office: Nuclear Energy, Science and Technology

Lab/Site/Org: Idaho National Laboratory

Facility Name: Materials and Fuels Complex

Subject/Title: Worker failed to remove key from applied LO/TO

Date/Time Discovered: 02/11/2011 17:05 (MTZ)

Date/Time Categorized: 02/14/2011 10:05 (MTZ)

Report Type: Notification

Report Dates:

Notification	02/16/2011	17:06 (ETZ)
Initial Update		
Latest Update		
Final		

Significance Category: 3

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

Cause Codes:

ISM: 4) Perform Work Within Controls

Subcontractor Involved: Yes
NORESCO

Occurrence Description: On Friday 02/11/2011, NORESCO and their sub tiers were working on substation 773 at the Materials and Fuels Complex (MFC). NORESCO is a contractor contracted by Department of Energy (DOE) to perform an Energy Conservation Measure (ECM) upgrades on various components i.e. electrical, boilers, Heating Ventilation and Air Conditioning equipment etc. at MFC. NORESCO was in the process of upgrading the 773 substation to provide power to these systems. Access to the substation 773 area was administratively restricted to require personnel entering this barricaded area to be on the Lockout and Tagout (LO/TO) whether they were in the hazardous zone or not. Upon completion of the 773 substation work, the NORESCO Project Manager (PM) entered the administratively controlled area to perform a visual inspection of the wire terminations,

	electrical switchgear, and cleanliness of the panels and components. The PM is LO/TO trained as a Facility Area Supervisor (FAS) and is familiar with the LO/TO process. The PM installed his personal lock on the LO/TO lockbox and entered the area forgetting to remove his personal key from the personal lock. The PM was acting as a separate work representative to perform the inspection, and was required by company procedure LWP-9400 “Lockouts and Tagout” to sign on as a work group representative, which he also failed to do. He had assumed he was working for the sub-tier contractor at this point, and consequently, did not act as a separate work group representative. The PM never came in contact with any equipment nor did he break the plane of the work zone. A sub tier electrician exiting the 773 area, went to the lockbox to remove his personal lock from the lockbox, and noticed the PM’s lock on the lockbox with the key still installed. The sub-tier removed the key from the personal lock and notified the Facility Project Manager (FPM) responsible for work performance of his discover and gave the key to the FPM. The FPM took possession of the key with the intent of delivering it to the PM In the interim the PM had noticed his key was not on his person, and contacted the FPM to notify him of his lost key. The FPM delivered the key to the PM. There were two other sub tier electricians on the lockbox at the time the PM left his key in his personal lock. Company procedure LWP-9400 “Lockouts and Tagouts” requires workers working under the protection of the LO/TO to walk down the LO/TO to verify it is safe and correct, and then install the personal lock on the lockbox and maintain control of their safety by keeping possession of their personal keys. If you are the representative from a different work group, you are required to review the LO/TO, the LO/TO record sheet, and accept by signature as the “Other” work group representative. The PM did not do this.
Cause Description:	
Operating Conditions:	Does not apply
Activity Category:	Construction
Immediate Action(s):	Work was suspended Notifications to Management Critique scheduled
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No

Division or Project:	NORESCO
Plant Area:	MFC-773
System/Building/Equipment:	Electrical Substation-773
Facility Function:	Balance-of-Plant - Site/outside utilities
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 11G--Other - Subcontractor 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical) 14E--Quality Assurance - Work Process Deficiency 14G--Quality Assurance - Procurement Deficiency
HQ Summary:	On February 11, 2011, a NORESCO project manager (PM) entered an administratively controlled area to perform a visual inspection of the wire terminations, electrical switchgear, and cleanliness of the panels and components, but forgot to remove his personal key from his personal lock that he had installed on the lockout/tagout (LO/TO) lockbox. The PM, acting as a separate work representative to perform the inspection, was required by company procedure to sign on as a work group representative, which he also failed to do. He had assumed he was working for the sub-tier contractor and consequently did not act as a separate work group representative. The project manager is LO/TO trained as a Facility Area Supervisor and is familiar with the LO/TO process. The project manager never came in contact with any equipment nor did he break the plane of the work zone. A sub-tier electrician, who was exiting the area went to the lockbox to remove his personal lock from the lockbox, and noticed the project manager’s lock on the lockbox with the key still installed. The sub-tier electrician removed the key from the personal lock and gave it to the facility project manager responsible for work performance. In the interim, the project manager had noticed that his key was not on his person, and contacted the facility project manager to notify him of his lost key. The facility project manager then delivered the key to the project manager. Work was suspended and a critique was scheduled.
Similar OR Report Number:	
Facility Manager:	Name: Eric K. Anderson Phone: (208) 526-8990 Title: Construction and Projects Manager
Originator:	Name: Crofts, Bryan P Phone: (208) 533-4081 Title: FACILITY PROJECT MANAGER
HQ OC Notification:	Date | Time | Person Notified | Organization

	NA NA NA NA
Other Notifications:	Date: 02/14/2011 08:45 (MTZ) Erik Anderson J160 02/14/2011 09:00 (MTZ) Curtis A. Collard J130 02/14/2011 09:15 (MTZ) Scott D McBride J100 02/14/2011 10:00 (MTZ) John C Martin DOE-ID
Authorized Classifier(AC):	

6)Report Number:	SC--ASO-ANLE-ANLEFMS-2011-0001 **After 2003 Redesign**
Secretarial Office:	Science
Lab/Site/Org:	Argonne National Laboratory East
Facility Name:	Facility Management Services
Subject/Title:	Endloader struck electrical receptacle post buried in snow
Date/Time Discovered:	02/03/2011 16:02 (CTZ)
Date/Time Categorized:	02/04/2011 13:23 (CTZ)
Report Type:	Notification/Final
Report Dates:	Notification 02/08/2011 18:13 (ETZ) Initial Update 02/08/2011 18:13 (ETZ) Latest Update 02/08/2011 18:13 (ETZ) Final 02/08/2011 18:13 (ETZ)
Significance Category:	4
Reporting Criteria:	10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 4 occurrence)
Cause Codes:	
ISM:	2) Analyze the Hazards 3) Develop and Implement Hazard Controls
Subcontractor Involved:	No
Occurrence Description:	On 2/3/2011 at 1602 hours, an endloader clearing snow on the roadway behind the building 333 Argonne Firehouse struck a buried post that supported an electrical receptacle. The approximately 1 foot tall post with a 120v receptacle mounted on it is fed from an underground circuit originating at a circuit breaker panel box within the firehouse. The receptacle was used to supply an engine block heater for the tractor that

	pulls the decon trailer. The tractor was moved several weeks ago to Building 300, former gas service station, to house it out of the winter weather conditions. The breaker supplying that circuit is a GFCI type. Following the incident, the breaker was found in the tripped position. The assumption at this point in time is that it was tripped when struck by the endloader plow but it may have tripped prior due to another cause. There was no observed arc-flash, no damage to the plow, nor did the operator experience any injury. Following investigation held on 2/4/2011, it was determined that this event was reportable as a Management Concern, Significance Category 4.
Cause Description:	
Operating Conditions:	Cold, sunny, snowy conditions
Activity Category:	Maintenance
Immediate Action(s):	The breaker was moved to the off position and a lockout applied by the fire department. The operator of the endloader was sent to the Argonne Medical Department for a fitness-for-duty evaluation, and subsequently returned to full duty.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	Facilities Management & Services Division
Plant Area:	300 area
System/Building/Equipment:	Bldg 333/outdoor electrical receptacle
Facility Function:	Balance-of-Plant - Site/outside utilities
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	07D--Electrical Systems - Electrical Wiring 08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	On February 3, 2011, an endloader clearing snow on the roadway behind the Building 333, Argonne Firehouse, struck a buried post that supported an electrical receptacle. The approximately 1-foot tall post with a 120-volt receptacle mounted on it is fed from an underground circuit originating at a circuit breaker panel box within the firehouse. The receptacle was used to supply an engine block heater for the tractor that pulls the decon trailer. The breaker supplying that circuit is a GFCI type and was found in the tripped position. The assumption is that the breaker was tripped when

	struck by the endloader plow, but it may have already been tripped from another cause. The breaker was moved to the off position and a lockout applied by the fire department. The operator of the endloader was sent to the Argonne Medical Department for a fitness-for-duty evaluation, and subsequently returned to full duty.
Similar OR Report Number:	1. SC--ASO-ANLE-ANLEFMS-2010-0010
	2. NE-ID--BEA-MFC-2010-0001
Facility Manager:	Name: Stine, Gail Phone: (630) 252-8930 Title: FMS Division Director
Originator:	Name: BRINDLE, SUSAN K Phone: (630) 252-6286 Title: ORPS COORDINATOR
HQ OC Notification:	Date: NA; Time: NA; Person Notified: NA; Organization: NA
Other Notifications:	Date: 02/04/2011; Time: 13:51 (CTZ); Person Notified: E. Turnquest; Organization: DOE-ASO
Authorized Classifier(AC):	

7)Report Number:	SC--PNSO-PNNL-PNNLBOPER-2011-0001 **After 2003 Redesign**
Secretarial Office:	Science
Lab/Site/Org:	Pacific Northwest National Laboratory
Facility Name:	Energy Research Programs (PNNL)
Subject/Title:	Non-Injury 120V Electrical Shock
Date/Time Discovered:	02/03/2011 15:50 (PTZ)
Date/Time Categorized:	02/03/2011 16:16 (PTZ)
Report Type:	Notification
Report Dates:	Notification: 02/04/2011 14:15 (ETZ) Initial Update: Latest Update: Final:
Significance Category:	2
Reporting Criteria:	2C(1) - Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or disturbance of a previously unknown or mislocated hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas) resulting in a person contacting (burn, shock,

	etc.) hazardous energy.
Cause Codes:	
ISM:	5) Provide Feedback and Continuous Improvement
Subcontractor Involved:	No
Occurrence Description:	On February 3, 2011, at ~1550 hours, a researcher working in the Bioproducts, Sciences, and Engineering Laboratory (BSEL) felt an electrical shock on his hand while operating a 120V laboratory incubator. There were no burns or injuries, the researcher was transported to Kadlec Medical Center for evaluation, and returned to work without restrictions.
Cause Description:	
Operating Conditions:	Dry conditions
Activity Category:	Research
Immediate Action(s):	The furnace was secured and tagged out of service pending further evaluation. A critique was held Monday, February 7, 2011.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: By When:
Division or Project:	Energy & Environment Directorate
Plant Area:	RCHN Area
System/Building/Equipment:	BSEL / 152
Facility Function:	Laboratory - Research & Development
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	08A--OSHA Reportable/Industrial Hygiene - Electrical Shock 12C--EH Categories - Electrical Safety 14L--Quality Assurance - No QA Deficiency
HQ Summary:	On February 3, 2011, a researcher, working in the Bioproducts, Sciences, and Engineering Laboratory, felt an electrical shock to his hand while operating a 120-volt laboratory incubator. There were no burns or injuries. The researcher was transported to the Kadlec Medical Center for evaluation and was returned to work with no work restrictions. The incubator was secured and tagged out pending further evaluation. A critique was scheduled for February 7.
Similar OR Report Number:	

Facility Manager:	Name: Orth, R. J. Phone: (509) 375-6709 Title: Manager, Chem & Biological Proc Dev
Originator:	Name: POLLARI, ROGER A Phone: (509) 371-7700 Title:

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
02/03/2011	17:02 (PTZ)	Carlson, J. L.	PNSO

Authorized Classifier(AC): Pollari, R. A. Date: 02/04/2011