

## September 2008 Electrical Safety Occurrences

There were 6 electrical safety occurrences for September 2008:

- 1 resulted in an electrical shock
- 1 involved lockout/tagout
- 1 involved excavation damage to an electrical line
- 2 involved vehicle intrusions of electrical service
- 2 involved electrical workers and 4 involved non-electrical workers
- 3 occurrences involved subcontractors

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),

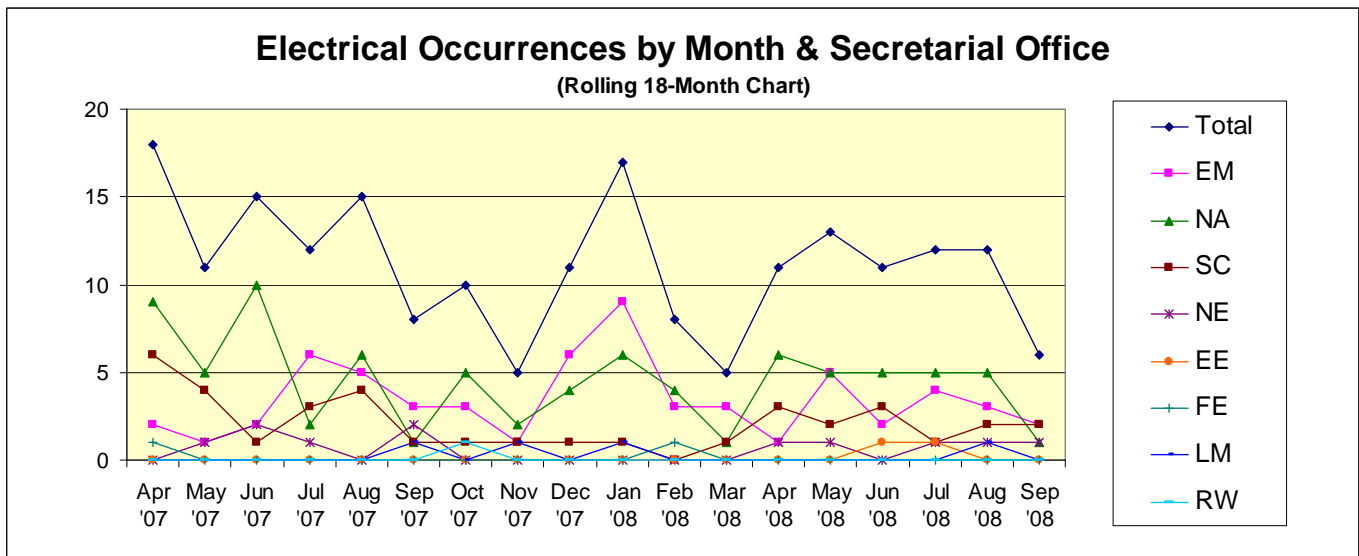
08A – Electrical Shock, 08J – Near Miss (Electrical), 12C – Electrical Safety

The initial search yielded 6 occurrences and a review of these determined none needed to be culled out.

Below is the current summary of 2008 electrical safety occurrences:

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
Jan-08	17	7	0	0
Feb-08	8	3	0	0
Mar-08	5	1	0	0
Apr-08	11	1	0	0
May-08	13	1	1	0
Jun-08	11	4	0	0
Jul-08	12	1	0	0
Aug-08	12	4	0	0
Sep-08	6	1	0	0
2008 total	95 (avg. 10.6/month)	23	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 average rate of electrical safety occurrences in 2008 is 10.6 per month, which is less than the average rate of 11.7 per month experienced in 2007.



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

## Electrical Safety Occurrences – September 2008

No	Report Number	Subject/Title	EW <sup>(1)</sup>	N-EW <sup>(2)</sup>	SUB <sup>(3)</sup>	SHOCK	BURN	ARCF <sup>(4)</sup>	LOTO <sup>(5)</sup>	EXCAV <sup>(6)</sup>	CUT/D <sup>(7)</sup>	VEH <sup>(8)</sup>
1	EM-RL--PHMC-PFP-2008-0005	The Boom of a Moving Excavator Contacted Overhead Communication Lines, Pulling Down Two Poles and Exposing Underground Electrical Lines.		X	X							X
2	EM-SR--SRNS-SRNL-2008-0001	Riding Mower Damages 480 V. Power Cord		X								X
3	NA--LASO-LANL-HEMACHPRES-2008-0002	Non-energized Electrical Line Cut During Excavation Project		X	X					X		
4	NE-ID--BEA-FCF-2008-0003	Broken Fuse Holder Results in Electrical Shock to Operator		X		X						
5	SC--PNSO-PNNL-PNNLBOPER-2008-0019	Subcontractor Work Control Issue	X		X				X			
6	SC--TJSO-JSA-TJNAF-2008-0004	Unexpected Discovery of Hazardous Energy while Conducting Diagnostics	X									
	TOTAL		2	4	3	1			1	1		2

### Key

(1)EW = electrical worker, (2)N-EW = non-electrical worker, (3)SUB = subcontractor, (4)ARCF = significant arc flash, (5)LOTO = lockout/tagout, (6)EXCAV = excavation, (7)CUT/D = cutting or drilling, (8)VEH = vehicle event

# ORPS Operating Experience Report

Production GUI - New ORPS

ORPS contains 53915 OR(s) with 57233 occurrences(s) as of 10/6/2008 10:38:26 AM  
Query selected 6 OR(s) with 6 occurrences(s) as of 10/6/2008 12:20:17 PM

Download this report in Microsoft Word format. 

<b>1)Report Number:</b>	<a href="#">EM-RL--PHMC-PFP-2008-0005</a> After 2003 Redesign		
<b>Secretarial Office:</b>	Environmental Management		
<b>Lab/Site/Org:</b>	Hanford Site		
<b>Facility Name:</b>	Plutonium Finishing Plant		
<b>Subject/Title:</b>	The boom of a moving excavator contacted overhead communication lines, pulling down two poles and exposing underground electrical lines.		
<b>Date/Time Discovered:</b>	09/10/2008 12:55 (PTZ)		
<b>Date/Time Categorized:</b>	09/10/2008 14:30 (PTZ)		
<b>Report Type:</b>	Notification		
<b>Report Dates:</b>	Notification	09/12/2008	14:24 (ETZ)
	Initial Update		
	Latest Update		
	Final		
<b>Significance Category:</b>	3		
<b>Reporting Criteria:</b>	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 3 occurrence)		
<b>Cause Codes:</b>			
<b>ISM:</b>			
<b>Subcontractor Involved:</b>	Yes G.A. Grant Construction		
<b>Occurrence Description:</b>	While a G. A. Grant Construction Heavy Equipment Operator (HEO) was moving an excavator out of a construction zone at the PFP, the excavator boom contacted and pulled down two utility poles and two sections of over head communications lines. The nearest worker to any of the poles or communication lines was a security escort, who was over 20 feet away northwest from the final position of the first downed utility pole.		

	<p>The excavator had been set up to support the installation of the Hanford Unirradiated Fuel Package (HUFPP) pad. The HEO moved the excavator from the HUFPP pad to the perimeter roadway (inside the protected area) in preparation for moving it out of the protected area. The HEO did not interrupt other work to obtain a spotter while moving the excavator and the work crew continued finishing a concrete segment that had been recently poured.</p> <p>The HEO did obtain a security escort to accompany him during this transitional move, but did not obtain a required spotter/ flagman (in accordance with work package 2Z-08-03117, the Job Safety Analysis and HNF-RD-28954 "Equipment Operation near Overhead Electrical Lines"). In addition, while the HEO did position the secondary boom of the excavator to its lowest position (this is the distal segment attached to the shovel), he failed to lower the primary boom to its lowest position prior to moving the excavator.</p> <p>While moving, the boom contacted communication lines that were 17-feet above the perimeter roadway. The excavator was moving northwest when it snagged the communication lines, causing a utility pole due east of the excavator to break off near ground level and fall due west to the ground. The nearest worker was over 20 feet away from where this pole landed. The displacement of this first utility pole caused a second utility pole southeast of the excavator to fall due north toward Building 2721-Z (a small concrete out-building containing diesel generators). The fallen poles displaced three under ground electrical lines within conduit (one 110-v &amp; two 240-v), with one 110-v shorting out and tripping its associated circuit breaker.</p>
<b>Cause Description:</b>	
<b>Operating Conditions:</b>	Does not apply
<b>Activity Category:</b>	Construction
<b>Immediate Action(s):</b>	<ul style="list-style-type: none"> <li>- Work was immediately stopped.</li> <li>- Notifications were made.</li> <li>- The excavator was placed into a safe configuration (engine off and boom lowered to rest).</li> <li>- A protective zone was established around the equipment, downed utility poles and downed lines,</li> </ul>

	<p>personnel were evacuated from the area, and statements and photos were gathered.</p> <ul style="list-style-type: none"> <li>- An alternate entrance/ exit was established for nearby Building 2736-ZB as part of the scene stabilization.</li> <li>- Hanford Electrical Utilities, PFP Engineering, and PFP Operations completed scene stabilization efforts involving the identification, isolation, and securing of communication and electrical utilities.</li> <li>- Scene stabilization efforts were coordinated with Security Services and Hanford Patrol.</li> <li>- Hanford Fire Department was notified of area restriction.</li> </ul>
<b>FM Evaluation:</b>	
<b>DOE Facility Representative Input:</b>	
<b>DOE Program Manager Input:</b>	
<b>Further Evaluation is Required:</b>	<p>Yes.          Before Further Operation? No          By Whom:          By When:</p>
<b>Division or Project:</b>	Plutonium Finishing Plant Closure Project
<b>Plant Area:</b>	200 West
<b>System/Building/Equipment:</b>	Communications/ Bldg 2736-ZB/ overhead lines
<b>Facility Function:</b>	Plutonium Processing and Handling
<b>Corrective Action:</b>	
<b>Lessons(s) Learned:</b>	
<b>HQ Keywords:</b>	<p>05E--Mechanical/Structural - Structural Deficiency/Failure          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)          08K--OSHA Reportable/Industrial Hygiene - Near Miss (Other)          10C--Transportation - Industrial Equipment Movement Incident          11G--Other - Subcontractor          12K--EH Categories - Near Miss (Could have been a serious injury or fatality)          13A--Management Concerns - HQ Significant (High-</p>

	lighted for Management attention) 13E--Management Concerns - Facility Call Sheet 14E--Quality Assurance - Work Process Deficiency															
<b>HQ Summary:</b>	While a subcontractor heavy equipment operator was moving an excavator out of a construction zone at the PFP, the excavator boom snagged two sections of overhead communications lines, pulled down two utility poles and exposed underground electrical lines causing a circuit breaker to trip. The nearest worker to any of the poles or communication lines was a security escort, who was more than 20 feet away. Work was immediately stopped, notifications were made and the excavator was placed into a safe configuration (engine off and boom lowered to rest).															
<b>Similar OR Report Number:</b>																
<b>Facility Manager:</b>	<table border="1"> <tr> <td>Name</td> <td colspan="3">JD MATHEWS</td> </tr> <tr> <td>Phone</td> <td colspan="3">(509) 373-4598</td> </tr> <tr> <td>Title</td> <td colspan="3">DIRECTOR FACILITY MANAGEMENT</td> </tr> </table>				Name	JD MATHEWS			Phone	(509) 373-4598			Title	DIRECTOR FACILITY MANAGEMENT		
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Phone	(509) 373-4598															
Title	DIRECTOR FACILITY MANAGEMENT															
<b>Originator:</b>	<table border="1"> <tr> <td>Name</td> <td colspan="3">SMITH, JAMES W</td> </tr> <tr> <td>Phone</td> <td colspan="3">(509) 372-3012</td> </tr> <tr> <td>Title</td> <td colspan="3">OPERATIONS MANAGER</td> </tr> </table>				Name	SMITH, JAMES W			Phone	(509) 372-3012			Title	OPERATIONS MANAGER		
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Phone	(509) 372-3012															
Title	OPERATIONS MANAGER															
<b>HQ OC Notification:</b>	<table border="1"> <thead> <tr> <th>Date</th> <th>Time</th> <th>Person Notified</th> <th>Organization</th> </tr> </thead> <tbody> <tr> <td>NA</td> <td>NA</td> <td>NA</td> <td>NA</td> </tr> </tbody> </table>				Date	Time	Person Notified	Organization	NA	NA	NA	NA				
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<b>Authorized Classifier(AC):</b>																

<b>2)Report Number:</b>	<a href="#">EM-SR--SRNS-SRNL-2008-0001</a> After 2003 Redesign					
<b>Secretarial Office:</b>	Environmental Management					
<b>Lab/Site/Org:</b>	Savannah River Site					
<b>Facility Name:</b>	Savannah River National Laboratory					
<b>Subject/Title:</b>	Riding Mower Damages 480 V. Power Cord					
<b>Date/Time Discovered:</b>	09/02/2008 09:30 (ETZ)					
<b>Date/Time Categorized:</b>	09/02/2008 12:30 (ETZ)					
<b>Report Type:</b>	Notification					
<b>Report Dates:</b>	<table border="1"> <tr> <td>Notification</td> <td>09/04/2008</td> <td>12:04 (ETZ)</td> </tr> </table>			Notification	09/04/2008	12:04 (ETZ)
Notification	09/04/2008	12:04 (ETZ)				

	Latest Update		
<b>Significance Category:</b>	3		
<b>Reporting Criteria:</b>	10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 3 occurrence)		
<b>Cause Codes:</b>	A1B5C02 - Design/Engineering Problem; Operability of Design / Environment LTA; Physical environment LTA		
<b>ISM:</b>	<ul style="list-style-type: none"> <li>2) Analyze the Hazards</li> <li>3) Develop and Implement Hazard Controls</li> <li>4) Perform Work Within Controls</li> </ul>		
<b>Subcontractor Involved:</b>	No		
<b>Occurrence Description:</b>	<p>A 480 volt, 3-phase power cord for the A-014 soil vapor extraction (SVE) pilot scale demonstration in lower 700 Area was cut by an SRNL Environmental Science and Biotechnology (ES&amp;BT) technician while mowing the grass in the area. There were no injuries as a result of the event.</p> <p>The electrical severity of this event is categorized as "Medium Significance" (rather than "High" or "Extreme" significance) using the Electrical Severity Measurement Tool guidance developed by the EFCOG. The calculated severity for this event is 300 (medium significance is score of 31-330). This event scores as follows: Electrical Hazard: 300 (480V); Environment Factor: 5; Shock Proximity Factor: 0; Arc Flash: 0; Thermal Factor: 0; no PPE mitigations, Injury Factor: 1.</p>		
<b>Cause Description:</b>	<p>Direct cause: The power cable was not marked in a manner to make it visible in heavy grass cover.</p> <p>Contributing cause: Grass cutting was not evaluated in the Hazard Analysis Plan because the project was not originally projected to extend into the grass growing season. The Hazard Analysis Plan was not re-evaluated upon extension of the project duration.</p>		
<b>Operating Conditions:</b>	Normal operations.		

<b>Activity Category:</b>	Maintenance	
<b>Immediate Action(s):</b>	The power source was de-energized. All mowing by SRNL personnel was suspended. Initial event review conducted on 9/2/2008. Follow-up event review conducted on 9/4/2008.	
<b>FM Evaluation:</b>	While there were no impacts to the facility, the event had potential to impact the safety of the individual operating the mower.	
<b>DOE Facility Representative Input:</b>		
<b>DOE Program Manager Input:</b>		
<b>Further Evaluation is Required:</b>	Yes. Before Further Operation? No By Whom: Apollo Analysis Team By When:	
<b>Division or Project:</b>	SRNL	
<b>Plant Area:</b>	Lower 700 Area,	
<b>System/Building/Equipment:</b>	A-014 Soil Vapor Extraction Pilot Scale Demo	
<b>Facility Function:</b>	Laboratory - Research & Development	
<b>Corrective Action 01:</b>	<b>Target Completion Date:</b> 09/02/2008	<b>Tracking ID:</b> 2008-CTS-012781, Item 3
	Evaluate event for reportability	
<b>Corrective Action 02:</b>	<b>Target Completion Date:</b> 09/03/2008	<b>Tracking ID:</b> 2008-CTS-012781, item 4
	Have the Site Utilities Department check the fuses on the power pole	
<b>Corrective Action 03:</b>	<b>Target Completion Date:</b> 09/15/2008	<b>Tracking ID:</b> 2008-CTS-012781, item 5
	Reevaluate Hazard Analysis Plan prior to restart of work at the demonstration site. Review/revise all active field demonstration Hazard Analysis Plans, as needed, to cover the unidentified hazard	
<b>Corrective Action 04:</b>	<b>Target Completion Date:</b> 09/15/2008	<b>Tracking ID:</b> 2008-CTS-012781, item 6
	Evaluate methods for providing better identification of above ground lines and utilities for portable equipment deploymentsdemonstration Hazard Analysis Plans, as needed, to cover the unidentified hazard	
<b>Corrective Action 05:</b>	<b>Target Completion</b>	<b>Tracking ID:</b> 2008-CTS-



	<b>Date:</b> 09/15/2008	012781, item 7				
	Evaluate mowing versus weed eating for all demonstration and sampling sites; include pre-job briefings for these activities.					
<b>Corrective Action 06:</b>	<b>Target Completion Date:</b> 09/19/2008	<b>Tracking ID:</b> 2008-CTS-012781, item 8				
	Repair damaged power cable (Qualified Electrical Worker)					
<b>Corrective Action 07:</b>	<b>Target Completion Date:</b> 09/15/2008	<b>Tracking ID:</b> 2008-CTS-012781, item 9				
	Inspect SVE equipment for potential damage prior to re-starting the system					
<b>Corrective Action 08:</b>	<b>Target Completion Date:</b> 09/19/2008	<b>Tracking ID:</b> 2008-CTS-012781, item 10				
	Provide lessons learned briefing to ES&BT personal					
<b>Lessons(s) Learned:</b>	A lessons learned briefing will be provided to all ES&BT field personnel focusing on the identification of hazards and mitigations related to changing conditions associated with field activities, especially over significant time periods.					
<b>HQ Keywords:</b>	01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other) 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) 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency					
<b>HQ Summary:</b>	While mowing the grass in the lower 700 Area, an SRNL Environmental Science and Biotechnology technician cut a 480-volt, 3-phase power cord for the A-014 Soil Vapor Extraction pilot scale demonstration. There were no injuries as a result of the event. The power source was de-energized and all mowing by SRNL personnel was suspended.					
<b>Similar OR Report Number:</b>	1. EM-SR--WSRC-FSSBU-2008-0003					
<b>Facility Manager:</b>	<table border="1"> <tr> <td>Name</td> <td>Flake, Mark D.</td> </tr> <tr> <td>Phone</td> <td>(803) 725-5816</td> </tr> </table>		Name	Flake, Mark D.	Phone	(803) 725-5816
Name	Flake, Mark D.					
Phone	(803) 725-5816					

	Title	Research Operations Support Manager		
<b>Originator:</b>	Name	DERMODY, RICHARD J		
	Phone	(803) 725-3113		
	Title	LEAD ADMIN. SPECIALIST-A		
<b>HQ OC Notification:</b>	Date	Time	Person Notified	Organization
	NA	NA	NA	NA
<b>Other Notifications:</b>	Date	Time	Person Notified	Organization
	09/02/2008	10:45 (ETZ)	Rober Moore	SRNL
	09/02/2008	10:45 (ETZ)	Deb Moore-Shedrow	SRNL
	09/02/2008	10:45 (ETZ)	Ray Battles	Safety
	09/02/2008	12:30 (ETZ)	Mark Flake	SRNL
	09/02/2008	12:30 (ETZ)	Fredrick Roemer	DOE-FR
	09/02/2008	12:30 (ETZ)	William Tadlock	SRNL
	09/02/2008	12:40 (ETZ)	Brian Tripp	SRNL
	09/02/2008	13:45 (ETZ)	Weimortz, R.	SRSOC
	<b>Authorized Classifier(AC):</b>	Craig Baptiste Date: 09/04/2008		

<b>3)Report Number:</b>	<a href="#">NA--LASO-LANL-HEMACHPRES-2008-0002</a> After 2003 Redesign		
<b>Secretarial Office:</b>	National Nuclear Security Administration		
<b>Lab/Site/Org:</b>	Los Alamos National Laboratory		
<b>Facility Name:</b>	HE Machining/Pressing Facils		
<b>Subject/Title:</b>	Non-energized Electrical Line Cut During Excavation Project		
<b>Date/Time Discovered:</b>	09/10/2008 15:00 (MTZ)		
<b>Date/Time Categorized:</b>	09/11/2008 10:00 (MTZ)		
<b>Report Type:</b>	Notification		
<b>Report Dates:</b>	Notification	09/15/2008	18:53 (ETZ)
	Initial Update		

	Latest Update		
	Final		
<b>Significance Category:</b>	3		
<b>Reporting Criteria:</b>	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.		
<b>Cause Codes:</b>			
<b>ISM:</b>			
<b>Subcontractor Involved:</b>	Yes KSL Services		
<b>Occurrence Description:</b>	<p>Management Synopsis: At 1500 hours on September 10, 2008 an electrical line was cut during drainage excavation in the TA-16-0969 parking lot by KSL. The electrical line feeds the lights in the parking lot, which are on a photocell system. Because of the photocell system, the electrical line is only energized at night or in low light conditions. The event occurred during daylight hours and the electrical line was not energized, however, it was not locked or tagged out. There was no impact to worker safety health or the environment as a result of this event.</p> <p>Background: The KSL utility workers were working under an approved excavation permit. Utility locates were performed during the excavation permitting phase and what was believe to be the electrical line was located and marked per KSL procedure 70-10-003, "KSL Excavation Requirements- Permit Process Requirements and Safety Program." KSL utility workers appropriately pot holed the around the identified line and discovered it was actually the grounding cable for the buildings lightning protection system. They proceeded with excavation activities and struck the electrical line.</p>		
<b>Cause Description:</b>			
<b>Operating Conditions:</b>	Normal		
<b>Activity Category:</b>	Construction		
<b>Immediate Action(s):</b>	1) Work was immediately stopped and notifications were made.		

	2) The electrical line was placed in a safe configuration through lock out/tag out.															
<b>FM Evaluation:</b>																
<b>DOE Facility Representative Input:</b>																
<b>DOE Program Manager Input:</b>																
<b>Further Evaluation is Required:</b>	Yes. Before Further Operation? No By Whom: ESH-IO and WFO By When: 10/24/2008															
<b>Division or Project:</b>	WFO/ drainage excavation project															
<b>Plant Area:</b>	TA16															
<b>System/Building/Equipment:</b>	TA-16-0969 parking lot															
<b>Facility Function:</b>	Explosive															
<b>Corrective Action:</b>																
<b>Lessons(s) Learned:</b>																
<b>HQ Keywords:</b>	01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 07D--Electrical Systems - Electrical Wiring 08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency															
<b>HQ Summary:</b>	On September 10, 2008, an electrical line was cut during drainage excavation in the TA-16-0969 parking lot by KSL. The event occurred during daylight hours and the electrical line was not energized, however, it was not locked or tagged out. There was no impact to worker safety health or the environment as a result of this event.															
<b>Similar OR Report Number:</b>																
<b>Facility Manager:</b>	<table border="1"> <tr> <td>Name</td> <td colspan="3">Robert Mason</td> </tr> <tr> <td>Phone</td> <td colspan="3">(505) 667-4246</td> </tr> <tr> <td>Title</td> <td colspan="3">WFO Facility Operations Director</td> </tr> </table>				Name	Robert Mason			Phone	(505) 667-4246			Title	WFO Facility Operations Director		
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<b>Originator:</b>	<table border="1"> <tr> <td>Name</td> <td colspan="3">HAKONSON-HAYES, AUDREY C</td> </tr> <tr> <td>Phone</td> <td colspan="3">(505) 667-9364</td> </tr> <tr> <td>Title</td> <td colspan="3">OCCURRENCE INVESTIGATOR</td> </tr> </table>				Name	HAKONSON-HAYES, AUDREY C			Phone	(505) 667-9364			Title	OCCURRENCE INVESTIGATOR		
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Phone	(505) 667-9364															
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NA	NA	NA	NA													

<b>Other Notifications:</b>	Date	Time	Person Notified	Organization
	09/11/2008	08:00 (MTZ)	Dave Stewart	NNSA
	09/11/2008	08:00 (MTZ)	Joe Richardson	PAAA

**Authorized Classifier(AC):** Mark Hunsinger Date: 09/15/2008

**4)Report Number:** [NE-ID--BEA-FCF-2008-0003](#) After 2003 Redesign

**Secretarial Office:** Nuclear Energy, Science and Technology

**Lab/Site/Org:** Idaho National Laboratory

**Facility Name:** Fuel Conditioning Facility

**Subject/Title:** Broken Fuse Holder Results in Electrical Shock to Operator

**Date/Time Discovered:** 09/30/2008 15:24 (MTZ)

**Date/Time Categorized:** 09/30/2008 16:28 (MTZ)

**Report Type:** Update

<b>Report Dates:</b>	Notification	10/01/2008	16:41 (ETZ)
	Initial Update	10/02/2008	11:41 (ETZ)
	Latest Update	10/02/2008	11:41 (ETZ)
	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 1524 on September 30, 2008 a Fuel Conditioning Facility process operator received a shock from a damaged manipulator control box grip tong fuse. The grip tong fuse receptacle is located in close proximity to the power button used by the technician to energize the grip tong. The fuse for this application has an integral fuse status indicator light that is normally enclosed in a plastic protective cover. At some undetermined time the protective cover had broken off and the metal end of the fuse holder was exposed (live) within the recessed fuse receptacle. The little finger of the operators right hand

	inadvertently contacted unexpected live electrical energy (120 vac) in the recessed fuse receptacle while he was energizing the grip tong. The shock did not result in injury to the operator.
<b>Cause Description:</b>	
<b>Operating Conditions:</b>	Facility Operating Mode
<b>Activity Category:</b>	Normal Operations (other than Activities specifically listed in this Category)
<b>Immediate Action(s):</b>	Work was immediately stopped, power removed from the unit, and the area roped off around the control box. The affected employee was escorted to the dispensary and released after a physical exam and EKG (A follow up exam and EKG was performed at 0800 on 10/01/08 and the employee was released with a clean bill of health). BEA management and the DOE Facility Representative were notified. An extent of conditions of all other Central Research Laboratories manipulator control boxes at FCF was performed and no other control boxes were identified with fuse problems.
<b>FM Evaluation:</b>	To be determined.
<b>DOE Facility Representative Input:</b>	
<b>DOE Program Manager Input:</b>	
<b>Further Evaluation is Required:</b>	Yes. Before Further Operation? No By Whom: Facility Manager By When:
<b>Division or Project:</b>	Nuclear Operations
<b>Plant Area:</b>	Main operating floor
<b>System/Building/Equipment:</b>	765
<b>Facility Function:</b>	Uranium Conversion/Processing and Handling
<b>Corrective Action:</b>	
<b>Lessons(s) Learned:</b>	
<b>HQ Keywords:</b>	07E--Electrical Systems - Electrical Equipment Failure 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency
<b>HQ Summary:</b>	On September 30, 2008, a Fuel Conditioning Facility process operator received a shock from a damaged manipulator control box grip tong fuse. The fuse has an integral fuse status indicator light that is normally

enclosed in a plastic protective cover. At some undetermined time the protective cover had broken off and the metal end of the fuse holder was exposed within the recessed fuse receptacle. Work was immediately stopped, power removed from the unit, and the area roped off around the control box. The affected employee was given a physical examination and released with no injuries diagnosed.

**Similar OR Report Number:**

**Facility Manager:**

Name	PAPAIIOANNOU, ERIC W
Phone	(208) 533-7868
Title	FUEL CONDITIONING FACILITY MANAGER

**Originator:**

Name	PAPAIIOANNOU, ERIC W
Phone	(208) 533-7868
Title	FUEL CONDITIONING FACILITY MANAGER

**HQ OC Notification:**

Date	Time	Person Notified	Organization
NA	NA	NA	NA

**Other Notifications:**

Date	Time	Person Notified	Organization
09/30/2008	15:24 (MTZ)	R. S. Cain	HCS
09/30/2008	15:25 (MTZ)	S. E. Ferrara	DOE

**Authorized Classifier(AC):**

J. L. Garner Date: 10/01/2008

**5)Report Number:**

[SC--PNSO-PNNL-PNNLBOPER-2008-0019](#) After 2003 Redesign

**Secretarial Office:**

Science

**Lab/Site/Org:**

Pacific Northwest National Laboratory

**Facility Name:**

Energy Research Programs (PNNL)

**Subject/Title:**

Subcontractor Work Control Issue

**Date/Time Discovered:**

09/11/2008 11:55 (PTZ)

**Date/Time Categorized:**

09/11/2008 13:30 (PTZ)

**Report Type:**

Notification

**Report Dates:**

Notification	09/15/2008	15:50 (ETZ)
Initial Update		
Latest Update		
Final		

<b>Significance Category:</b>	3
<b>Reporting Criteria:</b>	10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 3 occurrence)
<b>Cause Codes:</b>	
<b>ISM:</b>	4) Perform Work Within Controls 5) Provide Feedback and Continuous Improvement
<b>Subcontractor Involved:</b>	Yes Master Electric, Inc.
<b>Occurrence Description:</b>	<p>On September 11, 2008 an electrical sub-contractor employee entered the Horn Rapids Triangle (HRT) construction site to perform a repair on a subcontractor's field office trailer without addressing all of the PNNL requirements for performing electrical work. The requested repair consisted of replacement of the trailer panelboard (120/240V) and the subcontractor commenced work prior to having required approval and authorization. The subcontractor action to work on electrical equipment without addressing all of the PNNL electrical safety requirements represents a management concern.</p> <p>There was no electrical shock, personnel injuries, or hazardous energy left uncontrolled.</p>
<b>Cause Description:</b>	
<b>Operating Conditions:</b>	N/A
<b>Activity Category:</b>	Construction
<b>Immediate Action(s):</b>	Work was immediately stopped upon discovery. The work area was secured and a Controlling Organization's lock and tag was placed on the trailer electrical service disconnect. The incident was discussed with the responsible General Contractor and a critique was held Monday, September 15, 2008.
<b>FM Evaluation:</b>	
<b>DOE Facility Representative Input:</b>	
<b>DOE Program Manager Input:</b>	



<b>Further Evaluation is Required:</b>	Yes. Before Further Operation? No By Whom: By When:				
<b>Division or Project:</b>	Operational Systems / Facilities & Operations				
<b>Plant Area:</b>	PNNL Site				
<b>System/Building/Equipment:</b>	PSF Construction Site				
<b>Facility Function:</b>	Laboratory - Research & Development				
<b>Corrective Action:</b>					
<b>Lessons(s) Learned:</b>					
<b>HQ Keywords:</b>	01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous) 01F--Inadequate Conduct of Operations - Training Deficiency 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 01P--Inadequate Conduct of Operations - Inadequate Oral Communication 01R--Inadequate Conduct of Operations - Management issues 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 13E--Management Concerns - Facility Call Sheet 14B--Quality Assurance - Training and Qualification Deficiency 14E--Quality Assurance - Work Process Deficiency 14G--Quality Assurance - Procurement Deficiency				
<b>HQ Summary:</b>	On September 11, 2008 an electrical sub-contractor employee entered the Horn Rapids Triangle (HRT) construction site to perform a repair on a subcontractor's field office trailer without addressing all of the PNNL requirements for performing electrical work. The requested repair consisted of replacement of the trailer panelboard (120/240V) and the subcontractor commenced work prior to having required approval and authorization. The subcontractor action to work on electrical equipment without addressing all of the PNNL electrical safety requirements represents a management concern.				
<b>Similar OR Report Number:</b>					
<b>Facility Manager:</b>	<table border="1"> <tr> <td>Name</td> <td>Pittman, J. P.</td> </tr> <tr> <td>Phone</td> <td>(509) 371-7056</td> </tr> </table>	Name	Pittman, J. P.	Phone	(509) 371-7056
Name	Pittman, J. P.				
Phone	(509) 371-7056				

	Title	Project Manager, Physical Sciences Facility Constr		
<b>Originator:</b>	Name	POLLARI, ROGER A		
	Phone	(509) 371-7700		
	Title			
<b>HQ OC Notification:</b>	Date	Time	Person Notified	Organization
	NA	NA	NA	NA
<b>Other Notifications:</b>	Date	Time	Person Notified	Organization
	09/11/2008	13:42 (PTZ)	Higgins, R. L.	PNSO
<b>Authorized Classifier(AC):</b>	Pollari, R. A. Date: 09/15/2008			

<b>6)Report Number:</b>	<a href="#">SC--TJSO-JSA-TJNAF-2008-0004</a> After 2003 Redesign		
<b>Secretarial Office:</b>	Science		
<b>Lab/Site/Org:</b>	Thomas Jefferson National Accelerator Site		
<b>Facility Name:</b>	Thomas Jefferson Nat'l Accelerator		
<b>Subject/Title:</b>	Unexpected discovery of hazardous energy while conducting diagnostics		
<b>Date/Time Discovered:</b>	09/08/2008 12:00 (ETZ)		
<b>Date/Time Categorized:</b>	09/12/2008 17:00 (ETZ)		
<b>Report Type:</b>	Notification		
<b>Report Dates:</b>	Notification	09/18/2008	09:54 (ETZ)
	Initial Update		
	Latest Update		
	Final		
<b>Significance Category:</b>	3		
<b>Reporting Criteria:</b>	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.		
<b>Cause Codes:</b>	A4B2C08 - Management Problem; Resource Management LTA; Means not provided for assuring adequate equipment quality, reliability, or operability A2B3C03 - Equipment/ material problem; Inspection/		

	testing LTA; Post-maintenance/Post-modification testing LTA
<b>ISM:</b>	5) Provide Feedback and Continuous Improvement
<b>Subcontractor Involved:</b>	No
<b>Occurrence Description:</b>	<p>While performing a diagnostics check of a Magnet Power Supply, an AED International VC-4000 was being used to power up a section of a power supply. The work was being done under Chapter 6230 of the ESH&amp;Q Manual, specifically Class 2, Mode 2 (non-manipulative work on energized equipment using two qualified personnel, appropriate PPE and an approved Work Control Document). The voltage converter was being used so that the 480 volt house/normal power to the power supply could be locked out. The 110 volt source coming from the voltage converter was being used to back-feed the low voltage circuits of a power supply. The intent of the maintenance task was to take various resistance measurements on the power supply while the voltage converter was being cycled in the off position. The individual performing the measurements encountered a spark during the course of their work and then contacted their supervisor and ESH&amp;Q.</p> <p>Below is a detailed series of events:</p> <ol style="list-style-type: none"> <li>1) Technicians 1 and 2 removed power from a magnet power supply (LT&amp;T)</li> <li>2) Technicians 1 and 2 began trouble-shooting an inoperative switch in the magnet power supply</li> <li>3) Technicians 1 and 2 connected the VC-4000 to the control power source to execute the diagnostic work plan</li> <li>4) Technicians 1 and 2 ensured the VC-4000 power switch was in the off position</li> <li>5) Troubleshooting began; various measurements were made while performing diagnostics, both with control power on and with control power off.</li> <li>6) Technicians 1 and 2 saw a spark - Technician 2 noted that the LED was not lit and the on / off switch was in the off position</li> <li>7) Technician 2 did an AC Voltage check - saw 120v</li> <li>8) Technician 2 unplugged unit and took back to building 87</li> <li>9) Technician 2 tagged item "Do Not Use"</li> <li>10) Technician 2 informed the supervisor of the event</li> <li>11) Technician 2 reviewed a similar piece of equipment with another section of the Lab - the other item appeared satisfactory. A similar voltage check was conducted and 0</li> </ol>

	<p>volts was found.</p> <p>12)Technician 1 checked manuf specs for cords but couldn't determine cord configuration from website pictures</p> <p>13)Technician 2 removed cover - saw that hot leads were bypassing switch</p> <p>14)Technician 2 and ESHQ SME sent email / lessons learned to alert others</p> <p>Even though the worker had turned off the voltage converter before taking any resistance measurements, they still encountered a voltage presence within the power supply. After a short investigation it was determined that the attachment cord to the voltage converter was incorrectly connected at the back of the VC-4000. The hot and neutral terminals were reversed and therefore the neutral wire was going through the on/off switch at the front of the converter and the hot wire was not being switched and therefore led a path for 110 volts to be present at the output of the converter even when it was switched off.</p> <p>This event was originally presented to JLab as a lesson learned (JLab COE #237), however upon further investigation it was classified as a reportable event.</p>
<b>Cause Description:</b>	<p>1-Root Cause</p> <p>a. Lack of overall equipment management program for calibration, maintenance and configuration changes</p> <p>b. Lack of Organizational database / knowledge if attachment cord was assembled and connected by a qualified electrical professional</p> <p>c. Improperly wired attachment cord</p>
<b>Operating Conditions:</b>	Does not apply
<b>Activity Category:</b>	Facility/System/Equipment Testing
<b>Immediate Action(s):</b>	<p>1- Technician 2 unplugged unit and took back to building 87</p> <p>2- Technician 2 tagged item "Do Not Use"</p> <p>3- Technician 2 reviewed a similar piece of equipment with another section of the Lab - the other item appeared satisfactory. A similar voltage check was conducted and 0 volts was found.</p>
<b>FM Evaluation:</b>	
<b>DOE Facility Representative Input:</b>	
<b>DOE Program Manager</b>	

<b>Input:</b>			
<b>Further Evaluation is Required:</b>	No		
<b>Division or Project:</b>	Jefferson Science Associates, LLC		
<b>Plant Area:</b>	Bldg 87		
<b>System/Building/Equipment:</b>	87		
<b>Facility Function:</b>	Accelerators		
<b>Corrective Action 01:</b>	<table border="1"> <tr> <td><b>Target Completion Date:</b>10/01/2008</td> <td><b>Actual Completion Date:</b></td> </tr> </table>	<b>Target Completion Date:</b> 10/01/2008	<b>Actual Completion Date:</b>
<b>Target Completion Date:</b> 10/01/2008	<b>Actual Completion Date:</b>		
	JLab CATS items NE-2008-09 - Isolate, tag out and verify safe connections on all equipment with attachment cords similar to the unit in question; combine this with a staff wide email on safety as relates to this event.		
<b>Corrective Action 02:</b>	<table border="1"> <tr> <td><b>Target Completion Date:</b>10/01/2008</td> <td><b>Actual Completion Date:</b>09/16/2008</td> </tr> </table>	<b>Target Completion Date:</b> 10/01/2008	<b>Actual Completion Date:</b> 09/16/2008
<b>Target Completion Date:</b> 10/01/2008	<b>Actual Completion Date:</b> 09/16/2008		
	JLab CATS items NE-2008-09 - Group training to understand the source of the unexpected, uncontrolled hazardous energy, as well as the associated work planning documents and the LOTO requirements.		
<b>Corrective Action 03:</b>	<table border="1"> <tr> <td><b>Target Completion Date:</b>11/01/2008</td> <td><b>Actual Completion Date:</b></td> </tr> </table>	<b>Target Completion Date:</b> 11/01/2008	<b>Actual Completion Date:</b>
<b>Target Completion Date:</b> 11/01/2008	<b>Actual Completion Date:</b>		
	JLab CATS items NE-2008-09 - Revision of work planning document used for this particular task, to include use of the lowest possible energy state and how to obtain that state.		
<b>Corrective Action 04:</b>	<table border="1"> <tr> <td><b>Target Completion Date:</b>03/31/2009</td> <td><b>Actual Completion Date:</b></td> </tr> </table>	<b>Target Completion Date:</b> 03/31/2009	<b>Actual Completion Date:</b>
<b>Target Completion Date:</b> 03/31/2009	<b>Actual Completion Date:</b>		
	JLab CATS items NE-2008-09 - Evaluate Jefferson Lab need for equipment configuration control program, i.e., Gage Calibration & Tracking. Use this program to conduct periodic safety checks and records of maintenance.		
<b>Corrective Action 05:</b>	<table border="1"> <tr> <td><b>Target Completion Date:</b>03/31/2009</td> <td><b>Actual Completion Date:</b></td> </tr> </table>	<b>Target Completion Date:</b> 03/31/2009	<b>Actual Completion Date:</b>
<b>Target Completion Date:</b> 03/31/2009	<b>Actual Completion Date:</b>		
	JLab CATS items NE-2008-09 - Evaluate Jefferson Lab documentation requirements for credit card purchases. Use this program to establish and coordinate with BOA Credit Card Services a policy for items that can or cannot be purchased on a credit card.		
<b>Lessons(s) Learned:</b>	1- JLab COE input number 237 Improper Wiring of an		

	<p>attachment cord</p> <ol style="list-style-type: none"> <li>a. Make the cord attachment plug a more permanent connection.</li> <li>b. Redo the grounding connections so that the ground is connected to the main box and a ground jumper to the voltage converter cover plate.</li> <li>c. Recheck all internal wiring and connections within the VC-4000. Energize the voltage converter and check its operational status with switch on/off.</li> <li>d. Revisit the procedures used for this type of maintenance task.</li> </ol> <p>2- Equipment Control within JLab should be formalized. This would include</p> <ol style="list-style-type: none"> <li>a. Purchase specs &amp; receipt docs, regardless of purchase method (credit card or PR)</li> <li>b. Unique identifiers for each piece of equipment</li> <li>c. Location and contact info</li> <li>d. Calibration schedule and associated data</li> <li>e. Maintenance records, or configuration control if applicable</li> </ol> <p>Note - if a lab-wide program is not feasible, a scaled down version should be implemented, with prioritized equipment entered first</p>
<p><b>HQ Keywords:</b></p>	<p>01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)  01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control  01F--Inadequate Conduct of Operations - Training Deficiency  01G--Inadequate Conduct of Operations - Inadequate Procedure  01O--Inadequate Conduct of Operations - Inadequate Maintenance  01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation  07D--Electrical Systems - Electrical Wiring  11H--Other - Procurement Deficiency/Defective Items  12C--EH Categories - Electrical Safety  14A--Quality Assurance - Program Deficiency  14B--Quality Assurance - Training and Qualification Deficiency  14D--Quality Assurance - Documents and Records Deficiency  14E--Quality Assurance - Work Process Deficiency  14G--Quality Assurance - Procurement Deficiency</p>

<b>HQ Summary:</b>	While performing a diagnostics check of a Magnet Power Supply, an AED International VC-4000 was being used to power up a section of a power supply. The individual performing the measurements encountered a spark during the course of their work and then contacted their supervisor and safety. After a short investigation it was determined that the attachment cord to the voltage converter was incorrectly connected at the back of the VC-4000.			
<b>Similar OR Report Number:</b>				
<b>Facility Manager:</b>	Name	SMITH, STEPHEN JAY		
	Phone	(757) 269-7007		
	Title	LEAD QUALITY AND SAFETY ENGINEER		
<b>Originator:</b>	Name	SMITH, STEPHEN JAY		
	Phone	(757) 269-7007		
	Title	LEAD QUALITY AND SAFETY ENGINEER		
<b>HQ OC Notification:</b>	Date	Time	Person Notified	Organization
	NA	NA	NA	NA
<b>Other Notifications:</b>	Date	Time	Person Notified	Organization
	09/08/2008	12:00 (ETZ)	Steve Neilson	TJSO
<b>Authorized Classifier(AC):</b>	Stephen Smith      Date: 09/16/2008			

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 at (800) 473-4375. Hours: 7:30 a.m. - 5:00 p.m., Mon - Fri (ETZ).  
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