February 2008 Electrical Safety Occurrences

There were 8 electrical safety occurrences for February 2008:

- 3 resulted in shocks to workers
- 2 involved lockout/tagout
- 1 involved cutting an electrical wire
- 3 involved electrical workers and 5 involved non-electrical workers
- 3 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":

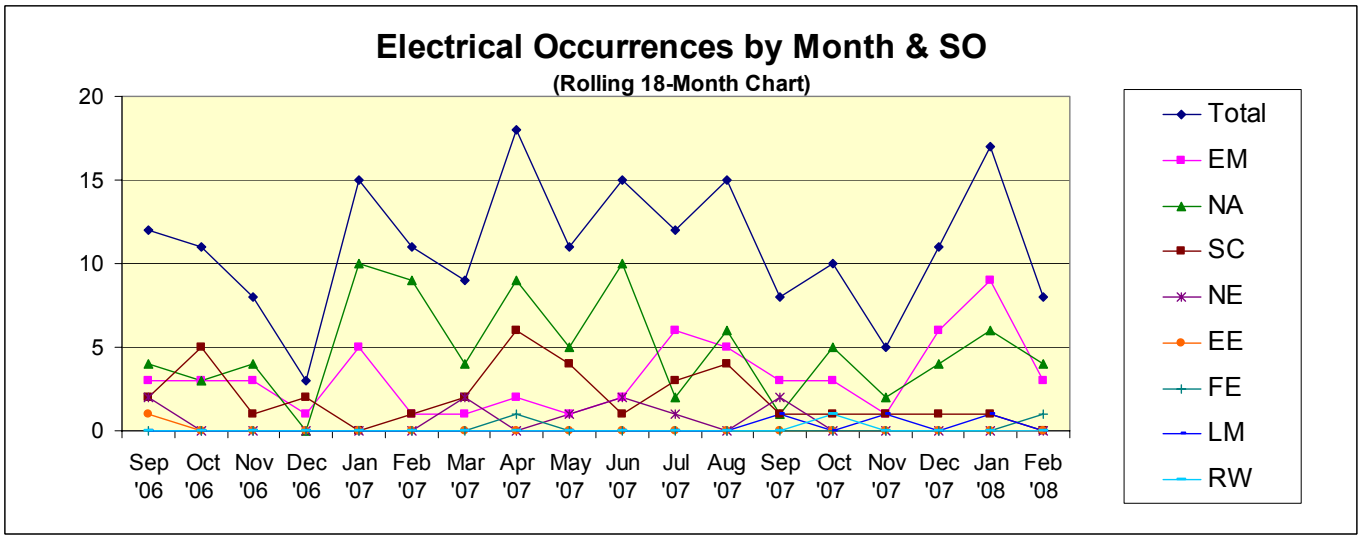
01K – Lockout/Tagout Electrical, 01M - Inadequate Job Planning (Electrical),
08A – Electrical Shock, 08J – Near Miss (Electrical), 12C – Electrical Safety

The initial search yielded 9 occurrences. However, one occurrence (NE-ID--BEA-INLLABS-2008-0001) involved the repair of a lathe and a lockout/tagout for rotating equipment rather than an electrical hazard. Culling out this occurrence yielded 8 electrical safety occurrences for the month.

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
2008 total	25 (avg. 12.5/month)	10	0	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 now 12.5 per month, which remains more than the average rate of 11.7 per month experienced in 2007.



Electrical Safety Occurrences – February 2008

No	Report Number	Subject/Title	EW[1]	N-EW[2]	SUB[3]	SHOCK	BURN	ARCF[4]	LOTO[5]	EXCAV[6]	CUT/D[7]	VEH[8]
1	EM-ORO--FWEC-TRUWPFAC-2008-0001	Deficient Lock Out Tag Out Procedure		X					X			
2	EM-RL--PHMC-PFP-2008-0002	Tape measure contacts plug in receptacle causing arc and damage to the tape and plug		X								
3	EM-SR--WSRC-HTANK-2008-0001	TANK 29 B-10 Riser Heat Trace Wire Damage While Removing Insulation		X							X	
4	FE--NETL-GOPE-NETLALBANY-2008-0001	Electrician Receives a Mild Shock Unexpectedly	X			X						
5	NA--LASO-LANL-TA55-2008-0004	Management Concern: Electrical Cord Discovered with Two Male Ends		X	X							
6	NA--NVSO-NST-LO-2008-0001	Lock Out/Tag Out Procedure Violation	X		X				X			
7	NA--SS-SNL-NMFAC-2008-0003	Crossed Neutral in Flexible Cord Connector results in Electrical Shock in Bldg. 808	X			X						
8	NA--SS-SNL-NMFAC-2008-0004	Asbestos Abatement Worker Receives Electrical Shock while Installing Plastic Sheeting in Bldg. 807		X	X	X						
	TOTAL		3	5	3	3			2		1	

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

ORPS contains 53633 OR(s) with 56951 occurrences(s) as of 3/5/2008 7:39:57 AM
Query selected 8 OR(s) with 8 occurrences(s) as of 3/5/2008 2:14:34 PM

Download this report in Microsoft Word format.

1)Report Number:	EM-ORO--FWEC-TRUWPFAC-2008-0001 **After 2003 Redesign**
Secretarial Office:	Environmental Management
Lab/Site/Org:	Oak Ridge Operations
Facility Name:	TRU Waste Processor FAC
Subject/Title:	Deficient Lock Out Tag Out Procedure
Date/Time Discovered:	02/14/2008 14:10 (ETZ)
Date/Time Categorized:	02/14/2008 16:00 (ETZ)
Report Type:	Notification/Final
Report Dates:	Notification 02/15/2008 11:57 (ETZ) Initial Update 02/15/2008 11:57 (ETZ) Latest Update 02/15/2008 11:57 (ETZ) Final 02/15/2008 11:57 (ETZ) Revision 1 02/19/2008 16:20 (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:	3) Develop and Implement Hazard Controls
Subcontractor Involved:	No
Occurrence Description:	While clearing a lockout/Tagout (LO/TO)it was discovered that a lock and tag had been hung on the wrong (adjacent) breaker. Work associated with LO/TOs was formally suspended(Work Suspension 2008-002). A critique was conducted and identified a deficiency in procedure T-CM-FW-P-IS-019 Lock out/Tag Out, the procedure for verification of installation of LO/TO was inadequate. It did not require an adequate verification for the installation of a LO/TO. There was no immediate danger to workers.
Cause Description:	
Operating Conditions:	Facility In Standby
Activity Category:	Facility/System/Equipment Testing
Immediate Action(s):	1. Suspended on all work associated with LO/TO. Work stopped on all

	equipment with LO/TOs installed 2. Conducted a critique. Identified deficiency in LO/TO Procedure 3. Developed and issued a Timely Order to Operators detailing the expectations for adequate verification of LO/TO. Compensatory measures were put in place providing guidance on the adequate verification of the installation of LO/TO.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	TRU Project
Plant Area:	Processing Building
System/Building/Equipment:	Waste Processing Building/ Remote Handled Waste Processing E
Facility Function:	Nuclear Waste Operations/Disposal
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01G--Inadequate Conduct of Operations - Inadequate Procedure 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical) 14D--Quality Assurance - Documents and Records Deficiency 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	A deficiency in verification requirements for lock-out/tag-out (LO/TO) was discovered during preoperational functional checks of the Remote Handled Waste Processing equipment. In addition to conducting the preoperational checks, operators were also installing LO/TO's to support ongoing inspections; the two tasks overlapped so that some of the functional checks required suspending inspection LO/TOs. A missing LO/TO was discovered during one of these suspension and attributed to the verification deficiency. Work was stopped and a critique was held.
Similar OR Report Number:	
Facility Manager:	Name: THOMPSON, CHRIS Phone: (865) 574-3441 Title: FACILITIES MANAGEMENT DIRECTOR
Originator:	Name: THOMPSON, CHRIS Phone: (865) 574-3441 Title: FACILITIES MANAGEMENT DIRECTOR

HQ OC Notification:	

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
02/14/2008	14:20 (ETZ)	Bob McKay	PM
02/14/2008	14:25 (ETZ)	Tony Buhl	GM
02/14/2008	14:30 (ETZ)	Bill McMillian	DOE PM
02/14/2008	14:30 (ETZ)	Rick Farr	DOE FR

Authorized Classifier(AC):

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2)Report Number:	EM-RL--PHMC-PFP-2008-0002 **After 2003 Redesign**
Secretarial Office:	Environmental Management
Lab/Site/Org:	Hanford Site
Facility Name:	Plutonium Finishing Plant
Subject/Title:	Tape measure contacts plug in receptacle causing arc and damage to the tape and plug
Date/Time Discovered:	02/13/2008 15:01 (PTZ)
Date/Time Categorized:	02/14/2008 13:10 (PTZ)
Report Type:	Notification/Final

Report Dates:

Notification	02/19/2008	18:26 (ETZ)
Initial Update	02/19/2008	18:26 (ETZ)
Latest Update	02/19/2008	18:26 (ETZ)
Final	02/19/2008	18:26 (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
Subcontractor Involved:	No
Occurrence Description:	At 1501 hours on 2/13/2008 an electrical fault with the potential to be of safety significance, or of concern to other facilities, occurred. An engineer was taking field measurements in Room 638, Building 2736-ZB with a typical metallic auto roll-up tape measure (16 ft X 3/4 inch width within a

	plastic housing). After taking a measurement, the engineer touched the auto retract button to retrieve the tape. As the tape moved against the wall, it collapsed and twisted, sliding along the wall, coming to rest within an approximate 1/8th inch gap between a cord plug and the electrical receptacle (120 V) it was plugged into. Upon contact, the metal tape shorted the plug's hot and neutral blades causing a momentary arc. An operator immediately told the engineer to drop the tape measure. After the engineer dropped the tape measure, it again shorted against the plug. As a result of both arcs, an approximate 3 & 3/4 inch run of tape was burned, a hole approximately 1/4 inch X 1/2 inch was also burned into the edge of the tape, and the plug was damaged. The engineer did not receive any shock, the receptacle was not damaged, and the circuit breaker did not trip. These results were attributed to the tape being of light weight material and the engineer not being grounded by holding the tape measure by the plastic case and wearing rubber soled sneakers. On 2/14/2008 at 1310 hours, the acting Director for PFP Facility Management determined this event to be worthy of reporting as a management concern.
Cause Description:	
Operating Conditions:	Routine fissile material handling and packaging operations within Building 2736-ZB
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s):	1. Verified that there were no health-related effects among personnel involved (engineer and operator). 2. Set up a safety boundary at the scene. 3. De-energized the circuit at Panel LP-NP-3 breakers 12 & 14. 4. Removed the plug and tape measure. 5. Initiated a check of equipment plugged into other receptacles on the circuit. Note: The plug was replaced on 02/14/2008.
FM Evaluation:	The determination of an SC-4 Management Concern was initially made by PFP facility management. Following this categorization, the FH Electrical Safety Point of Contact was asked to perform a review through application of the ORPS EFCOG Electrical Severity Measurement Tool [EFCOG / DOE Electrical Safety Improvement Project, Project Area 4 - Performance Measurement "Electrical Severity Measurement Tool" Revision 1, April 16, 2007]. The Electrical Severity (ES) equation is: ES = EHF(10)*[1+EF(0)+SPF(10)+AFPF(0)+TP(0)]*IF(1) = 110 => SC 4 Management Concern ES = Electrical Severity EHF = Electrical Hazard Factor - 120 volts (10) EF = Environmental Factor - Dry (0)

	SPF = Shock Proximity Factor - Crossed the Prohibited Approach Boundary (10) AFPF = Arc Flash Proximity Factor - (0) TP = Thermal Proximity Factor - Does not apply (0) IF = Injury Factor - None (1) The EFCOG developed this method for determining the severity associated with electrical energy type events to be able to quantify such events and apply some consistency in reporting them within the ORPS process.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	Plutonium Finishing Plant Closure Project
Plant Area:	200 West
System/Building/Equipment:	Electrical Outlet/2736-ZB/MetalTap Measure
Facility Function:	Plutonium Processing and Handling
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous) 01Q--Inadequate Conduct of Operations - Personnel error 07D--Electrical Systems - Electrical Wiring 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	An electrical fault occurred while an engineer was taking field measurements in Room 638, Building 2736-ZB with a metallic roll-up tape measure that has a plastic housing. When the engineer retracted the tape, the tape came into contact with the blades of an electric cord that was plugged into a receptacle. The tape shorted the plug's hot and neutral blades causing a momentary arc. The engineer dropped the tape measure, and it again shorted against the plug. As a result of both arcs, both the tape and plug were damaged. The engineer did not receive any shock, the receptacle was not damaged, and the circuit breaker did not trip.
Similar OR Report Number:	
Facility Manager:	Name: JD MATHEWS Phone: (509) 373-4598 Title: DIRECTOR, PFP FACILITY MANAGEMENT
Originator:	Name: SMITH, JAMES W

	Phone (509) 372-3012
HQ OC Notification:	Date: NA; Time: NA; Person Notified: NA; Organization: NA
Other Notifications:	Date: 02/14/2008; Time: 14:11 (PTZ); Person Notified: JM Sondag; Organization: DOE-RL
Authorized Classifier(AC):	NA Date: 02/19/2008

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3)Report Number:	EM-SR--WSRC-HTANK-2008-0001 **After 2003 Redesign**
Secretarial Office:	Environmental Management
Lab/Site/Org:	Savannah River Site
Facility Name:	H Tank Farm
Subject/Title:	TANK 29 B-10 Riser Heat Trace Wire Damage While Removing Insulation
Date/Time Discovered:	02/28/2008 17:45 (ETZ)
Date/Time Categorized:	02/28/2008 17:45 (ETZ)
Report Type:	Notification
Report Dates:	Notification: 03/03/2008 08:21 (ETZ); Initial Update: ; Latest Update: ; Final:
Significance Category:	3
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 3 occurrence)
Cause Codes:	
ISM:	2) Analyze the Hazards
Subcontractor Involved:	No
Occurrence Description:	On 2/28/08, a construction insulator, working for HTF maintenance, was tasked to remove insulation from Tank 29 B-10 riser valve CRW-V-144. The work package did not require a lockout, due to facility experience with insulation removal work packages. While removing the insulation from around valve CRW-V-144, the insulator inadvertently cut the heat trace wire. The heat trace wire was not visible to the insulator and cutting was unexpected. A minor arc was observed by a co-worker who alerted the insulator performing the work. The insulator notified his first line manager

	and notifications were made to the Shift Operations Manager. The heat trace breaker, which had not tripped, was placed in the "off" position. An approved work package was completed to repair the heat trace wire on Tank 29. There was no other damage to the facility and no process shutdowns occurred as a result of this incident. As an interim measure, all LWO insulation removal packages are placed on "hold", unless worked with an approved lockout, until the critique is held and the corrective actions are implemented. A critique is scheduled for 3/3/08. The Shift Operations Manager has categorized this event as a Near Miss Management Concern 10(3) Significant Category 3.
Cause Description:	
Operating Conditions:	Tank 29 was in Operations Mode. No transfers in progress.
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s):	Heat tracing breaker was de-energized, area was placed in a safe condition.
FM Evaluation:	There were no injuries or process shutdowns as a result of this incident.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Occurrence Investigator By When:
Division or Project:	CLOSURE/HCLOSURE
Plant Area:	H-TF
System/Building/Equipment:	241-929 / Waste Tank 29
Facility Function:	Nuclear Waste Operations/Disposal
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other) 07D--Electrical Systems - Electrical Wiring 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical) 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	A construction insulator inadvertently cut a heat trace wire while removing insulation from a valve on a Waste Tank 29 riser. The work package did not require a lockout, due to facility experience with insulation removal work packages. The heat trace wire was not visible to the insulator and was unexpectedly cut. A co-worker observed a minor arc and alerted the insulator, who then notified his first line manager. The heat trace breaker, which had not tripped, was placed in the "off" position. An approved work package was completed to repair the heat trace wire on Tank 29. As an interim measure, insulation removal packages are placed on "hold", unless

	worked with an approved lockout. Notifications were made and a critique was held.
Similar OR Report Number:	
Facility Manager:	Name: BORDERS, MICHAEL Phone: (803) 208-8592 Title: FACILITY MANAGER
Originator:	Name: JOHNSON, WAYMAN JEROME Phone: (803) 208-0175 Title: QUALITY ENGINEER
HQ OC Notification:	Date: NA; Time: NA; Person Notified: NA; Organization: NA
Other Notifications:	02/28/2008 17:45 (ETZ) Ron Hampton DOE-FR 02/28/2008 17:45 (ETZ) Mike Borders FM 02/28/2008 17:53 (ETZ) Bill Lanham OPS 02/28/2008 17:54 (ETZ) Adam Orris Eng 02/28/2008 17:55 (ETZ) Kim Hauer LWO-FM 02/28/2008 18:00 (ETZ) Marvin Holland SRSOC 02/28/2008 18:32 (ETZ) Wayman Johnson SIRIM
Authorized Classifier(AC):	

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4)Report Number:	FE--NETL-GOPE-NETLALBANY-2008-0001 **After 2003 Redesign**
Secretarial Office:	Fossil Energy
Lab/Site/Org:	National Energy Technology Laboratory
Facility Name:	NETL - Albany
Subject/Title:	Electrician Receives a Mild Shock Unexpectedly
Date/Time Discovered:	02/27/2008 10:51 (ETZ)
Date/Time Categorized:	02/28/2008 14:20 (ETZ)
Report Type:	Notification
Report Dates:	Notification: 03/03/2008 16:28 (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:	A2B3C03 - Equipment/ material problem; Inspection/ testing LTA; Post-maintenance/Post-modification testing LTA
ISM:	2) Analyze the Hazards 3) Develop and Implement Hazard Controls 4) Perform Work Within Controls 5) Provide Feedback and Continuous Improvement
Subcontractor Involved:	No
Occurrence Description:	An electrician removed the service panel on a 440 volt metal lathe to visually assess the electrical requirements for the lathe. The service panel was removed because the electrician needed to install a low voltage non-restart switch and was uncertain about the electrical demand used by the lathe. The service panel is routinely removed to perform maintenance activities such as belt replacement, belt adjustment, and debris removal. Access to the service panel does not normally involve exposure to electrical hazards and precautions such as unplugging the unit or lockout/tagged of the unit are only required when performing maintenance on the unit. In this instance, the electrician was merely performing a visual inspection of the electical motor specifications, and energy isolation was not required. Upon removing the service panel, the electrician unexpectedly received a slight "tingle," at which time work was immediately halted by the electrician and the lathe tagged and removed from service.
Cause Description:	The plug used by the lathe was wired incorrectly. Upon inspection it was determined that one of the three phase wires had been connected to the ground position on the plug and the ground had been connected to the phase position. This reversed wiring of the ground and phase wires caused the metal surface of the lathe to be unexpectedly energized. The electrician was wearing proper footwear (rubber sole boots) at the time of the incident and therefore did not receive the full 277 volts being applied to the lathe surfaces.
Operating Conditions:	Normal Maintenance Operations

Activity Category:	Maintenance
Immediate Action(s):	The electrician immediately stopped work and contacted the supervisor to report what had happened. A volt meter was then used to determine voltage between the lathe and a reliable ground. A voltage of 277 volts was observed. The lathe was immediately unplugged, locked out, tagged out, and removed from service.
FM Evaluation:	The improperly wired electrical plug had been installed in May 2007 by a qualified electrician. It is unknown whether a subsequent modification of the plug had been made by an unqualified person.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	Facility Maintenance
Plant Area:	Machine Shop
System/Building/Equipment:	Building 28 room 001
Facility Function:	Balance-of-Plant - Machine shops
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	07D--Electrical Systems - Electrical Wiring 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock 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 14H--Quality Assurance - Inspection and Acceptance Testing Deficiency
HQ Summary:	An electrician removed the service panel on a 440 volt metal lathe to visually assess the electrical requirements for the lathe. The electrician needed to install a low voltage non-restart switch and was uncertain about the electrical demand used by the lathe. Upon removing the service panel, the electrician unexpectedly received a slight "tingle". The electrician immediately stopped work and contacted the supervisor to report what had happened. A volt meter was then used to determine that the potential between the lathe and a reliable ground was 277 volts. The lathe was immediately unplugged, locked out, tagged out, and removed from service. The electrician was wearing proper footwear (rubber-soled boots) at the time of the incident and therefore did not receive the full 277 volts being applied to the lathe surfaces. Upon inspection it was determined that the plug had

	been improperly wired; one of the three phase wires had been connected to the ground position on the plug and the ground had been connected to the phase position, which caused the metal surface of the lathe to be unexpectedly energized..
Similar OR Report Number:	1. 1. EM-ID--BBWI-RWMC-2005-0005
	2. 2. SC--BSO-LBL-EETD-2007-0001
	3. 3. LM---STOL-MOUND-2007-0001
	4. 4. NA--SS-SNL-1000-2006-0017
Facility Manager:	Name: Rodriguez, Hector M Phone: (541) 967-5916 Title: ES&H MANAGER
Originator:	Name: Rodriguez, Hector M Phone: (541) 967-5916 Title: ES&H MANAGER
HQ OC Notification:	Date: NA, Time: NA, Person Notified: NA, Organization: NA
Other Notifications:	02/27/2008 20:30 (ETZ) Stephen Curfman NETL-Alb 02/28/2008 06:46 (ETZ) Wlliam Lowry NETL 02/28/2008 14:00 (ETZ) Robert Reuther NETL
Authorized Classifier(AC):	

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5)Report Number:	NA--LASO-LANL-TA55-2008-0004 **After 2003 Redesign**
Secretarial Office:	National Nuclear Security Administration
Lab/Site/Org:	Los Alamos National Laboratory
Facility Name:	Plutonium Proc & Handling Fac
Subject/Title:	Management Concern: Electrical Cord Discovered with Two Male Ends
Date/Time Discovered:	02/08/2008 16:30 (MTZ)
Date/Time Categorized:	02/14/2008 11:35 (MTZ)
Report Type:	Notification/Final
Report Dates:	Notification 02/19/2008 18:48 (ETZ) Initial Update 02/19/2008 18:48 (ETZ) Latest Update 02/19/2008 18:48 (ETZ) Final 02/19/2008 18:48 (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:	4) Perform Work Within Controls
Subcontractor Involved:	Yes AK Services and Clause Construction
Occurrence Description:	MANAGEMENT SYNOPSIS: On the afternoon of the eighth of February, sub-contract workers experienced a tripped breaker while performing work at building PF-41 at Technical Area 55 (TA-55). The Facility and Infrastructure Recapitalization Project (FIRP) Project Leader was contacted, who came out to the site. The sub-contractor had brought several spider boxes on-site to assist with the decommissioning work at PF-41. All temporary power supplied to on-site spider boxes are on Ground Fault Circuit Interrupter (GFCI) circuits. One of these spider boxes appeared to be the source of the tripped breaker. The FIRP Project Leader unplugged everything from the spider box and then unplugged the box from the temporary power source. This is when he discovered that the spider box itself had been plugged into the temporary power source with an electrical cord that had two male ends, which violates several electrical safety codes. He immediately secured the cord and removed one end of it. A critique was held on February 14, 2008, at which time the Facilities Operations Director (FOD) declared this to be a Management Concern, Significance Category 4. BACKGROUND: Two sub-contractors had been performing decommissioning work at PF-41, AK Services and Clause Construction. Clause Construction provided the site with spider boxes, which they allowed AK Services personnel to plug into, as needed. The spider boxes were set out for use and an Activity Hazards Analysis (AHA) was performed on the configuration on January 10, 2008. Sometime after that, the configuration changed. On or near January 28, 2008, AK Services needed to put in place a room with a heater in order to keep some materials dry. They borrowed the use of a spider box in order to supply power to the heater. AK Services contract has since been terminated and they have left the site and were not available at the critique. On January 7, 2008, Clause Construction personnel experience a tripped breaker due to a spider box. The FIRP Project Leader came out to the site and evaluated the load on the spider box. He thought that perhaps too many

	tools were being run off of one string from the spider box, so some tools were moved to another string and the spider box was put back in service. Then on January 8, 2008, when the same spider box tripped again, the FIRP Project Leader took a more in-depth look and discovered the electrical cord with two male ends. The spider boxes have a male side and a female side, so that they can be connected to each other, if need be. Clause Construction's cords have a male plug at one end and an open end at the other, so that they can be wired in or have a female end installed. The temporary power station receptacle that this spider box was plugged into takes a male end. According to the FIRP Project Leader, an unqualified worker placed a male end on the cord without inspecting the other end of the cord. This led to a cord with two male ends and the tripping of the breaker. According to the LANL Electrical Safety Office (ESO), this was not a near miss to injury, although the piece of equipment was hazardous. This event was run through the Electrical Severity Tool and the score is a 20. Due to this, and the lack of configuration control, the FOD declared this event a Management Concern, Significance Category 4.
Cause Description:	
Operating Conditions:	Normal
Activity Category:	Facility Decontamination/Decommissioning
Immediate Action(s):	1) The faulty cord was secured from further use. 2) An AHA was performed on the spider box configuration on February 12, 2008, before returning to work. 3) A Critique was held on February 14, 2008. 4) Clause Construction created a Spider Box Configuration Verification form to prevent this type of event from occurring in the future. 5) The TA-55 ESO will ensure that spider box configuration verification is captured institutionally. 6) The Construction Safety Manager will ensure that spider box configuration management is captured in universal documents for sub-contractors working at LANL.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	TA55
Plant Area:	PF41
System/Building/Equipment:	Electrical Cord

Facility Function:	Plutonium Processing and Handling
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous) 01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 01Q--Inadequate Conduct of Operations - Personnel error 01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation 07D--Electrical Systems - Electrical Wiring 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14D--Quality Assurance - Documents and Records Deficiency 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	An electrical cord was discovered in use for temporary construction power which had two male ends, a violation of electrical safety codes. The cord was taken out of service and a critique was held
Similar OR Report Number:	

Facility Manager:

Name	Stuart McKernan
Phone	(505) 667-7501
Title	Facilities Operations Director Designee

Originator:

Name	VOSS, SUSAN J
Phone	(505) 667-5979
Title	OCCURRENCE INVESTIGATOR

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
02/13/2008	09:54 (MTZ)	Lily Reese	PAAA
02/13/2008	10:00 (MTZ)	Hotline	NNSA
02/13/2008	10:03 (MTZ)	Lloyd Gordon	LANL ESO
02/13/2008	10:06 (MTZ)	Chuck Keilers	DNSFB

Authorized Classifier(AC):	Susan J. Voss Date: 02/19/2008

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6)Report Number:	NA--NVSO-NST-LO-2008-0001 **After 2003 Redesign**
Secretarial Office:	National Nuclear Security Administration

Lab/Site/Org:	Bechtel Nevada, Livermore Operations
Facility Name:	Livermore Operations
Subject/Title:	Lock Out/Tag Out Procedure Violation
Date/Time Discovered:	02/19/2008 10:30 (PTZ)
Date/Time Categorized:	02/19/2008 10:45 (PTZ)
Report Type:	Notification/Final
Report Dates:	Notification 02/20/2008 14:15 (ETZ) Initial Update 02/20/2008 14:15 (ETZ) Latest Update 02/20/2008 14:15 (ETZ) Final 02/20/2008 14:15 (ETZ) Revision 1 02/20/2008 19:39 (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:	3) Develop and Implement Hazard Controls
Subcontractor Involved:	Yes NorCal Electric
Occurrence Description:	On February 14, 2008, as part of a National Security Technologies, LLC (NSTec) Livermore Operations (LO) Management Assessment, the electrical subcontractor was observed applying a personal lock and tag out (LOTO) to a single pole circuit breaker. After the LOTO was removed it was discovered by the safety representative that the employee who applied the lock did not actually perform the work. As part of a remodeling project a LOTO was needed to allow a wall switch to be removed. Electrical wiring to the wall switch needed to be pulled back into the overhead conduit and secured. After the subcontractor installed the LOTO, another subcontractor employee performed the actual work of disconnecting the wires and pulling the wires through the conduit. After the work was completed the LOTO was removed by the subcontractor employee who installed the LOTO. The subcontractors were immediately informed by the safety representative that the employee who is performing the hazardous energy operation is the person that needs to apply the lock and tag, as well as, have exclusive

	control of the key for that lock. The condition was identified as ORPS on 2/19 when the management assessment was reviewed by the Price-Anderson Amendments Act/Worker Safety and Health screeners. No injuries or damage as a result of this occurrence.
Cause Description:	
Operating Conditions:	Does Not Apply
Activity Category:	Construction
Immediate Action(s):	The subcontractors were immediately informed by the safety representative that the employee who is performing the hazardous energy operation is the person that needs to apply the lock and tag, as well as, have exclusive control of the key for that lock. Notifications made to NSTec and Nevada Site Office line management.
FM Evaluation:	Although this occurrence could meet the definition of Hazardous Energy Control 2C(2), it is our position that there was not a failure to control hazarous energy but a failure to follow the LOTO process; which could have resulted in a hazardous energy control failure. Therefore NSTec reported as a management concern.
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	Remodeling Project
Plant Area:	Livermore Operations
System/Building/Equipment:	Livermore Operations
Facility Function:	Balance-of-Plant - Offices
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 11G--Other - Subcontractor 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical) 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	During a Management Assessment, an electrical subcontractor was observed applying a personal lock and tag out (LOTO) to a single pole circuit breaker. After the LOTO was removed, the safety representative discovered that the employee who applied the lock did not actually perform the work, which consisted of removing a wall switch and securing the associated wiring. The safety representative immediately informed the subcontractors that the

	employee who is performing the hazardous energy operation is the person that needs to apply the lock and tag, as well as, have exclusive control of the key for that lock.
Similar OR Report Number:	1. DP-NVOO--BN-LO-2001-0001
Facility Manager:	Name: Ken Cooke Phone: (925) 960-2525 Title: NSTec Livermore Operations Manager
Originator:	Name: GILE, ANDREA L Phone: (702) 295-7438 Title: PROJECT OPERATIONS SPEC.
HQ OC Notification:	Date: NA; Time: NA; Person Notified: NA; Organization: NA
Other Notifications:	02/19/2008 12:30 (PTZ) Duty Manager SOC 02/19/2008 12:45 (PTZ) Dennis Armstrong NSO/FR
Authorized Classifier(AC):	

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7)Report Number:	NA--SS-SNL-NMFAC-2008-0003 **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:	Crossed Neutral in Flexible Cord Connector results in Electrical Shock in Bldg. 808
Date/Time Discovered:	02/01/2008 13:30 (MTZ)
Date/Time Categorized:	02/01/2008 15:00 (MTZ)
Report Type:	Notification
Report Dates:	Notification: 02/04/2008 17:57 (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:	Yes Enterprise Electric
Occurrence Description:	On February 1, 2007, at approximately 1:30pm in Building 808, a line employee received a 120volt shock while holding a standard 120volt, 20-amp plug. The plug feeds a portable clean room. The portable clean room has three separate 120volt standard electrical plugs that feed its internal circuitry. Two circuits feed two fans and one circuit feeds the lights. An Electrical Construction Contractor pre-wired the apparatus in December for the building occupants. The impacted line employee plugged one cord into a wall receptacle and the employee heard "fan circuit 1" turn on. The worker then plugged in a second cord feeding "fan circuit 2" and did not hear any additional fans turning on. While walking the third cord to a third wall receptacle, the worker's finger simultaneously made contact with the neutral and ground pins of the cord end and received a shock. Investigation identified during the cord installation activity, the Electrical Construction Contract electrician crossed neutrals of the cords to fan 2 and the lights. Because of the crossed neutrals, the neutral connected to "fan circuit 2" was wired to the plug (lighting) the employee was holding. When the employee's finger in touched the neutral and ground terminals on the plug, the circuit to "fan circuit 2" was completed and the employee was shocked. A Facilities Maintenance Organization Center (FMOC) electrician was contacted for diagnostics and testing. The electrician corrected the problem and verified that all circuits are now in a safe configuration. The line employee was taken to medical for evaluation and released with no restrictions.
Cause Description:	
Operating Conditions:	Normal
Activity Category:	Construction
Immediate Action(s):	FMOC electrical corrected the wiring and all circuits placed in a safe condition.
FM Evaluation:	Early Notification Dates and Times: EOC - 2/1/08 - 13:18 FR - Wayne Walker - 2/1/08, 13:56
DOE Facility Representative Input:	
DOE Program Manager	

Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Causal Analysis Team By When: 03/17/2008
Division or Project:	4000/Install 120v ext cords on a pre-fab clean rm
Plant Area:	Tech Area I
System/Building/Equipment:	Bldg. 808
Facility Function:	Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)
Corrective Action:	
Lessons(s) Learned:	
HQ Keywords:	01S--Inadequate Conduct of Operations - Incorrect/Inadequate Installation 07D--Electrical Systems - Electrical Wiring 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency 14G--Quality Assurance - Procurement Deficiency 14H--Quality Assurance - Inspection and Acceptance Testing Deficiency
HQ Summary:	A line employee received a 120-volt shock while holding a standard 120-volt, 20-amp plug. The plug is one of three that provides electrical power to a portable clean room, two for fans and one for a light circuit. The impacted line employee plugged one cord into a wall receptacle and the employee heard "fan circuit 1" turn on. The employee then plugged in a second cord feeding "fan circuit 2" and did not hear any additional fans turning on. While walking the third cord to a third wall receptacle, the employee's finger simultaneously touched the neutral and ground pins of the cord end and received the shock. Investigation identified that a subcontractor electrician had crossed neutrals of the cords to fan 2 and the lights. When the employee's finger touched the neutral and ground, the circuit to "fan circuit 2" was completed. The employee was taken to medical for evaluation and released with no restrictions. An electrician corrected the plug wiring and verified that all circuits were in a safe configuration.
Similar OR Report Number:	
Facility Manager:	Name: Carla Lamb Phone: (505) 844-1753 Title: ES&H Coordinator - Facilities Management & Ops Ctr
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
02/01/2008	15:00 (MTZ)	John Norwalk	4827
02/01/2008	15:00 (MTZ)	Michael Quinlan	4820
02/04/2008	07:30 (MTZ)	Wayne Walker, FR	DOE/SSO

Authorized Classifier(AC):	John Norwalk Date: 02/04/2008

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8)Report Number:	NA--SS-SNL-NMFAC-2008-0004 **After 2003 Redesign**
Secretarial Office:	National Nuclear Security Administration
Lab/Site/Org:	Sandia National Laboratories - SS
Facility Name:	SNL NM Site-wide F & M
Subject/Title:	Asbestos Abatement Worker Receives Electrical Shock while Installing Plastic Sheeting in Bldg. 807
Date/Time Discovered:	02/08/2008 09:40 (MTZ)
Date/Time Categorized:	02/08/2008 09:40 (MTZ)
Report Type:	Notification
Report Dates:	

Notification	02/11/2008	16:25 (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:	Yes Southwest Hazard Control/ATC, New Mexico
Occurrence Description:	On February 8, 2008, at approximately 9:10am, a Facilities Management & Operations Center (FMOC) subcontract asbestos abatement worker installing plastic sheeting in preparation for asbestos abatement activities in Building 807 received an electrical shock. The asbestos abatement activities are part of the FMOC 807 Demolition project and is located on the third floor next the center stairwell.

	While installing the plastic sheeting the worker pulled a conduit away from a small section of brick wall to place the plastic material behind the conduit. The conduit pulled apart at a coupling and damaged the conductors resulting in a 120V shock to the worker. The worker was transported to SNL Medical by a co-worker for medical evaluation and was release that same day with no restrictions. The conduit was traced by an FMOC electrical engineering representative, safety representative, and electrical subcontractor responding to the incident. The conduit contained two # 12 hot conductors and a neutral (conduit was acting as the ground path which was typical when this building was constructed) that originated in Panel EP1 located in the basement. The two 120V, 20 amp single pole breakers supplying power to the conductors were placed in the off position and locked and tagged by the electrical subcontractor working on the project. The Project Manager suspended all work on the project until FMOC electrical engineering evaluates the building electrical system and develops an electrical plan for the Demolition project.
Cause Description:	Critique/Fact Finding 2/8/08
Operating Conditions:	Normal
Activity Category:	Facility Decontamination/Decommissioning
Immediate Action(s):	- Worker was taken to SNL Medical - Work on project was suspended until Electrical Engineering evaluates the building electrical system
FM Evaluation:	DOE/SSO Early Notification Date & Time: EOC - 2/8/08 - 09:55 Bill Wechsler, FR - 2/8/08 - 10:03
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	Yes. Before Further Operation? No By Whom: Causal Analysis Team By When:
Division or Project:	4000
Plant Area:	Tech Area I
System/Building/Equipment:	Bldg. 807
Facility Function:	Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)
Corrective Action:	

Lessons(s) Learned:	
HQ Keywords:	01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other) 07D--Electrical Systems - Electrical Wiring 08A--OSHA Reportable/Industrial Hygiene - Electrical Shock 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency
HQ Summary:	A subcontract asbestos abatement worker installing plastic sheeting in preparation for asbestos abatement activities in Building 807 received an electrical shock. The worker pulled a conduit away from a small section of brick wall in order to place the plastic material behind it. The conduit pulled apart at a coupling and damaged the conductors resulting in a 120-volt shock to the worker. The worker was transported to SNL Medical by a co-worker for medical evaluation and was release that same day with no restrictions. Work has been suspended pending evaluation of the building electrical system.
Similar OR Report Number:	
Facility Manager:	Name: Carla Lamb Phone: (505) 844-1753 Title: ES&H Coordinator - Facilities Management & Ops Ctr
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:	02/08/2008 09:48 (MTZ) John Norwalk 4827 02/08/2008 09:50 (MTZ) Wayne Walker, FR DOE/SSO 02/08/2008 13:54 (MTZ) Jeff Quintenz 4800 02/08/2008 13:54 (MTZ) Michael Quinlan 4820
Authorized Classifier(AC):	John Norwalk Date: 02/11/2008