

September 2007 Electrical Safety Occurrences

There were 8 electrical safety occurrences for September 2007:

- 3 involved lockout/tagout
- 1 involved excavation
- 4 involved electrical workers and 4 involved non-electrical workers
- 4 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":

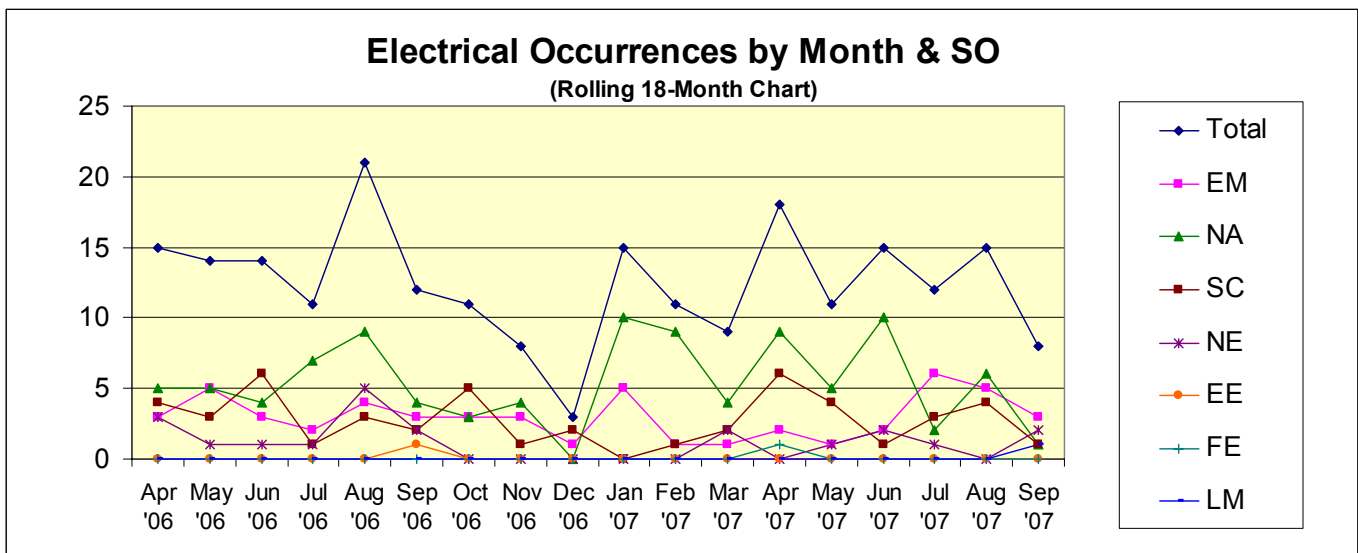
01K – Lockout/Tagout Electrical, 01M - Inadequate Job Planning (Electrical),
08A – Electrical Shock, 08J – Near Miss (Electrical), 12C – Electrical Safety

The initial search yielded 8 occurrences and a review of these determined none needed to be culled out.

Below is the current summary of 2007 electrical safety occurrences:

Period	Electrical Safety Occurrences	Shocks	Burns	Fatalities
Jan-07	15	1	0	0
Feb-07	11	3	0	0
Mar-07	9	1	0	0
Apr-07	18	3	1	0
May-07	11	1	0	0
Jun-07	15	5	0	0
Jul-07	12	3	1	0
Aug-07	15	5	0	0
Sep-07	8	0	0	0
2007 total	114 (avg. 12.7/month)	22	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 2007 is now 12.7 per month, which remains less than the average rate of 13.8 per month experienced in 2006.



Electrical Safety Occurrences – September 2007

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-RL--PHMC-FSS-2007-0014	MO-039 (222-S) Heating Ventilation and Air Conditioning (HVAC) Unit Troubleshooting		X					X			
2	EM-RL--PHMC-PFP-2007-0016	Ground Fault Inside and Perforation of Electrical Conduit to Supply Fan # 3 After Conduit was Bumped with a Small Cardboard Box		X								
3	EM-RP--BNRP-RPPWTP-2007-0018	Failure to Follow NFPA 70E Requirements Regarding Resetting of Tripped Breakers	X									
4	LM---STOL-RF-2007-0001	Severed underground 220 V electrical cable		X	X					X		
5	NA--LASO-LANL-TA55-2007-0036	Management Concern: Pipe Threader Maintenance	X		X				X			
6	NE-ID--BEA-ATR-2007-0018	Electrical Energy (120 VAC) Found Following Lockout /Tagout (LO/TO) Zero Energy Checks	X		X				X			
7	NE-ID--BEA-RTC-2007-0003	Mislabeled Breaker Leads to Subcontractor Energizing Unconnected Power Line	X		X							
8	SC--BHSO-BNL-BNL-2007-0014	Unexpected Discovery of an Uncontrolled Electrical Energy Source in Building 490		X								
	TOTAL		4	4	4				3	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 53617 OR(s) with 56935 occurrences(s) as of 2/27/2008 11:36:09 AM
 Query selected 8 OR(s) with 8 occurrences(s) as of 2/27/2008 3:12:23 PM

Download this report in Microsoft Word format. 

1)Report Number:	EM-RL--PHMC-FSS-2007-0014 After 2003 Redesign		
Secretarial Office:	Environmental Management		
Lab/Site/Org:	Hanford Site		
Facility Name:	Facility & Site Services		
Subject/Title:	MO-039 (222-S) Heating Ventilation and Air Conditioning (HVAC) Unit Troubleshooting		
Date/Time Discovered:	09/24/2007 09:00 (PTZ)		
Date/Time Categorized:	09/25/2007 14:00 (PTZ)		
Report Type:	Notification/Final		
Report Dates:	Notification	09/27/2007	14:37 (ETZ)
	Initial Update	09/27/2007	14:37 (ETZ)
	Latest Update	09/27/2007	14:37 (ETZ)
	Final	09/27/2007	14:37 (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:	1) Define the Scope of Work 2) Analyze the Hazards 3) Develop and Implement Hazard Controls 4) Perform Work Within Controls		
Subcontractor Involved:	No		
Occurrence Description:	On 9/24/2007, it was discovered that Refrigerant Equipment Service craft personnel performed worked on the incorrect HVAC unit. Their work package instructions were to troubleshoot and repair HVAC unit #1 on MO039. The craftsman isolated the unit, installed their Authorized Worker Lock (AWL) and performed work on HVAC unit # 1 on MO037.		
Cause Description:			

Operating Conditions:	Normal Operations						
Activity Category:	Maintenance						
Immediate Action(s):	1. Ensured HVAC units were in safe configuration 2. Conducted fact finding meeting						
FM Evaluation:	Prior to initiating maintenance activities the work scope must be clearly understood. The hazards must be identified and analyzed to identify critical steps. This is performed to ensure the scope of work is understood, hazards are analyzed and the correct component/equipment is identified prior to the start of work.						
DOE Facility Representative Input:							
DOE Program Manager Input:							
Further Evaluation is Required:	No						
Division or Project:	Closure Services and Infrastructure						
Plant Area:	200 West Area						
System/Building/Equipment:	HVAC Unit # 1/MO037/200 West Area						
Facility Function:	Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)						
Corrective Action:							
Lessons(s) Learned:	Prior to initiating maintenance work the work scope must be clearly understood. The hazards must be identified and analyzed to identify critical steps. This is performed to ensure the scope of work is understood, hazards are analyzed and the correct component/equipment is identified prior to the start of work.						
HQ Keywords:	01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 01O--Inadequate Conduct of Operations - Inadequate Maintenance 12I--EH Categories - Lockout/Tagout (Electrical or Mechanical) 14E--Quality Assurance - Work Process Deficiency						
HQ Summary:	Refrigerant Equipment Service craft personnel performed worked on an incorrect HVAC unit in the 200 West Area. The work package instructed them to troubleshoot and repair HVAC unit #1 on MO039. However, the work was performed on HVAC unit # 1 on MO037. A fact finding meeting was held.						
Similar OR Report Number:							
Facility Manager:	<table border="1"> <tr> <td>Name</td> <td>Richard Gonzales</td> </tr> <tr> <td>Phone</td> <td>(509) 373-2759</td> </tr> <tr> <td>Title</td> <td>Manager, Facility Services</td> </tr> </table>	Name	Richard Gonzales	Phone	(509) 373-2759	Title	Manager, Facility Services
Name	Richard Gonzales						
Phone	(509) 373-2759						
Title	Manager, Facility Services						

Originator:	Name	BOYCE, MICHAEL L		
	Phone	(509) 376-3030		
	Title	OCCURRENCE REPORTING SPEC.		
HQ OC Notification:	Date	Time	Person Notified	Organization
	NA	NA	NA	NA
Other Notifications:	Date	Time	Person Notified	Organization
	09/24/2007	09:15 (PTZ)	Perry Donahoe	Fac Serv
	09/24/2007	10:30 (PTZ)	J Heineman	CH2M
	09/24/2007	10:30 (PTZ)	Rob Gentry	CS&I
	09/24/2007	11:30 (PTZ)	Rich Slocum	CS&I
	09/24/2007	14:00 (PTZ)	Larry Earley	FAC REP
Authorized Classifier(AC):				

2)Report Number:	EM-RL--PHMC-PFP-2007-0016 After 2003 Redesign		
Secretarial Office:	Environmental Management		
Lab/Site/Org:	Hanford Site		
Facility Name:	Plutonium Finishing Plant		
Subject/Title:	Ground Fault Inside and Perforation of Electrical Conduit to Supply Fan # 3 After Conduit was Bumped with a Small Cardboard Box		
Date/Time Discovered:	09/27/2007 09:55 (PTZ)		
Date/Time Categorized:	09/27/2007 14:50 (PTZ)		
Report Type:	Notification/Final		
Report Dates:	Notification	10/01/2007	17:52 (ETZ)
	Initial Update	10/01/2007	17:52 (ETZ)
	Latest Update	10/01/2007	17:52 (ETZ)
	Final	10/01/2007	17:52 (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:	6) N/A (Not applicable to ISM Core Functions as determined by		

	management review.)
Subcontractor Involved:	No
Occurrence Description:	<p>On 09/27/2007, an electrical short and subsequent conduit perforation occurred when the electrical supply conduit to Supply Fan # 3 (SF-3), was bumped by a cardboard box that was moved by a worker in the area. The worker was performing maintenance on air compressor units located adjacent to SF-3, and he noticed a brief spark when he bumped the steel flexible conduit with a small cardboard box containing rags. The craft team established a safety boundary around the failed conduit and notified the Building Emergency Director (BED).</p> <p>At 0955 hours on 09/27/2007, this event was considered to be non-reportable, and appropriate notifications were initiated by the BED. At 1450 hours on 9/27/2007, PFP management determined the event worthy of formally sharing as a Management Concern and declared a Group 10(2), SC-4 occurrence.</p>
Cause Description:	
Operating Conditions:	Does not apply
Activity Category:	Maintenance
Immediate Action(s):	<p>The BED established an alternate supply fan configuration (SF-3 did not trip off when the short occurred) and directed the circuit breaker be placed in the OFF position. Shortly thereafter a controlling-organization lock and tag was applied to the SF-3 breaker.</p> <p>Follow-up actions: The wiring and conduit were replaced and the failed conduit examined. The conduit had an approximate 1/8" x 1/4" perforation in it. One phase of the circuit shorted and created the hole. Approximately four inches away from this location, another short was evident on a different phase of the wiring (3-phase circuit); however, this short had not perforate the conduit.</p>
FM Evaluation:	<p>The ground fault of the power supply conduit to Supply Fan # 3 (SF-3) was most likely due to vibration of the wires inside the conduit over an extended time. All of the wiring in the area of the two shorts exhibited markings that indicated contact with and wear caused by the steel flex conduit.</p> <p>There was not enough current draw caused by the grounding to trip any protective features of the fan electrical system (in this case a 30 amp breaker for SF-3).</p> <p>There are a total of six supply fans in Room 602, 2736-ZB. The fan motors on SF-1 and SF-2 were replaced in CY 2000 with newer style flex conduit. The power supply conduit and wiring of the remaining three fans (SF-4, SF-5 & SF-6) will be inspected and replaced, as necessary, during the performance of either periodic preventive maintenance or corrective maintenance, whichever occurs first.</p>

DOE Facility Representative Input:									
DOE Program Manager Input:									
Further Evaluation is Required:	No								
Division or Project:	Plutonium Finishing Plant Closure Project								
Plant Area:	200 W								
System/Building/Equipment:	Ventilation / Room 602, 2736-ZB / Supply Fan # 3								
Facility Function:	Plutonium Processing and Handling								
Corrective Action:									
Lessons(s) Learned:									
HQ Keywords:	07D--Electrical Systems - Electrical Wiring 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency								
HQ Summary:	A worker performing maintenance on air compressor units located adjacent to Supply Fan #3 (SF-3) noticed a brief spark when he bumped the electrical supply conduit to SF-3 with a small cardboard box. The craft team established a safety boundary around the failed conduit and notified the Building Emergency Director (BED), who established an alternate supply fan configuration, and directed the circuit breaker be placed in the OFF position. Subsequently, the wiring and conduit were replaced and the failed conduit examined. The conduit had an approximate 1/8" x 1/4" perforation in it where one phase conductor had shorted.								
Similar OR Report Number:									
Facility Manager:	<table border="1"> <tr> <td>Name</td> <td>CJ SIMIELE</td> </tr> <tr> <td>Phone</td> <td>(509) 373-1519</td> </tr> <tr> <td>Title</td> <td>DIRECTOR, PFP FACILITY OPERATIONS</td> </tr> </table>	Name	CJ SIMIELE	Phone	(509) 373-1519	Title	DIRECTOR, PFP FACILITY OPERATIONS		
Name	CJ SIMIELE								
Phone	(509) 373-1519								
Title	DIRECTOR, PFP FACILITY OPERATIONS								
Originator:	<table border="1"> <tr> <td>Name</td> <td>SMITH, JAMES W</td> </tr> <tr> <td>Phone</td> <td>(509) 372-3012</td> </tr> <tr> <td>Title</td> <td>OPERATIONS MANAGER</td> </tr> </table>	Name	SMITH, JAMES W	Phone	(509) 372-3012	Title	OPERATIONS MANAGER		
Name	SMITH, JAMES W								
Phone	(509) 372-3012								
Title	OPERATIONS MANAGER								
HQ OC Notification:	<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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NA	NA	NA	NA						
Other Notifications:	<table border="1"> <thead> <tr> <th>Date</th> <th>Time</th> <th>Person Notified</th> <th>Organization</th> </tr> </thead> <tbody> <tr> <td>09/27/2007</td> <td>15:11 (PTZ)</td> <td>JM Sondag</td> <td>DOE-RL</td> </tr> </tbody> </table>	Date	Time	Person Notified	Organization	09/27/2007	15:11 (PTZ)	JM Sondag	DOE-RL
Date	Time	Person Notified	Organization						
09/27/2007	15:11 (PTZ)	JM Sondag	DOE-RL						
Authorized Classifier(AC):	JW Smith Date: 09/28/2007								

3)Report Number: [EM-RP--BNRP-RPPWTP-2007-0018](#) After 2003 Redesign

Secretarial Office:	Environmental Management		
Lab/Site/Org:	Hanford Site		
Facility Name:	RPP Waste Treatment Plant		
Subject/Title:	Failure to Follow NFPA 70E Requirements Regarding Resetting of Tripped Breakers		
Date/Time Discovered:	09/27/2007 11:04 (PTZ)		
Date/Time Categorized:	10/02/2007 09:33 (PTZ)		
Report Type:	Final		
Report Dates:	Notification	10/03/2007	17:45 (ETZ)
	Initial Update	11/14/2007	18:39 (ETZ)
	Latest Update	11/15/2007	17:33 (ETZ)
	Final	11/15/2007	17:33 (ETZ)
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:	A3B1C06 - Human Performance Less Than Adequate (LTA); Skill Based Errors; Wrong action selected based on similarity with other actions -->couplet - A4B3C11 - Management Problem; Work Organization & Planning LTA; Inadequate work package preparation		
ISM:	1) Define the Scope of Work 2) Analyze the Hazards 3) Develop and Implement Hazard Controls		
Subcontractor Involved:	No		
Occurrence Description:	<p>On the morning of August 6, 2007, a work plan was assembled to determine the reason for an unscheduled outage at Temporary Power Substation 9, that occurred after hours on the evening of August 2, 2007. The plan was first to see if it could be determined by inspection at Sub 9 what caused the outage. If necessary, a switching plan would be used, designed to identify and isolate the offending circuit.</p> <p>Initial observation, a rotating amber beacon above the switchboard, indicated that the main breaker had tripped. Application of the switching plan on the 13.8kV TX switch on the transformer was initiated. The Sub 9, 480V switchboard was opened and an examination of circuit breaker targets and positions was recorded. It was observed on the main breaker that a ground fault indication was present. All of the feeder breakers in the distribution section were found in the normal position. There were no obvious signs that</p>		

	<p>the fault occurred inside the switchboard itself.</p> <p>At this point, the switching plan continued and the individual feeder breakers were opened. Next the main breaker was closed, the transformer TX switch was then closed, and the main breaker remained closed, further indicating that the fault was beyond the switchboard itself. One by one, the feeder breakers were closed. When the breaker for Circuit 3 was closed, the main breaker tripped out on ground fault again. It was determined that following this course of action would be the way to verify that the faulted condition no longer existed, or locate the fault, if it was still present.</p>
<p>Cause Description:</p>	<p>The causal analysis method used was the Causal Analysis Tree model as documented in DOE G 231.1-2. The apparent causal analysis (ACA) developed for this occurrence was derived using the following documentation:</p> <p>* Safety Task Analysis Risk Reduction Talk (STARRT) card prepared on the day of the event,</p> <p>Apparent Cause Analysis -</p> <p>The NFPA 70E code and the BNI procedures requires that after a circuit is de-energized by a circuit protective device, a circuit shall not be manually reenergized until it has been determined that the equipment and circuit can be safely energized. The group working on the situation did not understand the condition and selected the incorrect response. (A3B1C06 Wrong action selected based on similarity with other actions) The NFPA 70E code and the procedures require examination of the circuit or connected equipment shall be required before the circuit is reenergized under Fault Condition. However, the work package (switching plan) did not accurately reflect the conditions of the circuit or communicate the correct steps needed to safely reenergize the system. (A4B3C11 Inadequate work package (switching plan) preparation)</p> <p>The event in question was reported in the Waste Vitrification and Treatment Plant (WTP) Project Issues Evaluation Report (PIER) system as 24590-WTP-PIER-MGT-07-1096, Rev. 0. The PIER and notification occurrence report were reviewed for 10 CFR 851 applicability. The evaluation determined the subject issue to be non-compliant with NFPA 70E Article 130.6(K) "Re-closing Circuit After Protective Device Operation". Because this condition was determined non-compliant, action is required in accordance with Section 3.3.3 of procedure Price-Anderson Amendments Act / Worker Safety and Health Program Compliance and Reporting (24590-WTP-GPP-MGT-029</p>
<p>Operating Conditions:</p>	<p>Does not apply</p>
<p>Activity Category:</p>	<p>Construction</p>

Immediate Action(s):	A post-job review of the actions surrounding the restoration of Sub 9 revealed that the action of manually reenergizing the circuit breaker, after observing indications that the breaker operation was due to a ground fault, was in violation of NFPA 70E Article 130.6 (K) (Reclosing Circuits After Protective Device Operation). This article permits the reclosing of circuits only when its determined that it is safe to do so from the design of the circuit and that automatic operation of the over current devices involved was caused by an overload rather than a fault condition. Under these conditions, no examination of the circuit or connected equipment is required before circuit reenergizing.	
FM Evaluation:	The event illustrates the importance of taking the time to properly assess the conditions of the work site versus the intended task, to ensure that potentially hazardous conditions are identified and addressed prior to the start of work. Management policy is to reinforce processes known to mitigate or otherwise eliminate hazards.	
DOE Facility Representative Input:		
DOE Program Manager Input:		
Further Evaluation is Required:	No	
Division or Project:	Waste Treatment Plant	
Plant Area:	600	
System/Building/Equipment:	Balance of Facilities	
Facility Function:	Nuclear Waste Operations/Disposal	
Corrective Action 01:	Target Completion Date: 02/28/2008	Tracking ID: 24590-WTP-CRPT-QA-07-275
	CRPT-QA-07-275 is designated as a PAAA CAR as it is associated with NTS Report: NTS-ORP--BNRP-RRPWTP-2007-0006 Failure to Follow NFPA 70E Requirements Regarding resetting of Tripped Breakers. This will require an apparent cause analysis with recommended actions being entered in the CAR. The ORPS report will be revised with the apparent cause(s) and corrective actions when the apparent cause analysis is complete.	
Lessons(s) Learned:	After a circuit is deenergized by a circuit protective device, the circuit shall not be manually reenergized until it has been determined that the equipment and circuit can be safely energized.	
HQ Keywords:	01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 01O--Inadequate Conduct of Operations - Inadequate Maintenance 07B--Electrical Systems - Electrical Distribution 07C--Electrical Systems - Power Outage	

	12C--EH Categories - Electrical Safety 13A--Management Concerns - HQ Significant (High-lighted for Management attention) 14E--Quality Assurance - Work Process Deficiency												
HQ Summary:	A post-job review of the actions to restore power following an unscheduled outage on August 2, 2007, at Temporary Power Substation 9, revealed that manually reenergizing the circuit breaker after knowing that the breaker tripped on a ground-fault, was in violation of NFPA 70E Article 130.6 (K) Reclosing Circuits After Protective Device Operation. This article permits the reclosing of circuits only when its determined that it is safe to do so from the design of the circuit and that automatic operation of the over current devices involved was caused by an overload rather than a fault condition.												
Similar OR Report Number:	1. N/A												
Facility Manager:	<table border="1"> <tr> <td>Name</td> <td>BOND, SHAWN L</td> </tr> <tr> <td>Phone</td> <td>(509) 371-2117</td> </tr> <tr> <td>Title</td> <td>SAFETY OPERATIONS SPECIALIST</td> </tr> </table>	Name	BOND, SHAWN L	Phone	(509) 371-2117	Title	SAFETY OPERATIONS SPECIALIST						
Name	BOND, SHAWN L												
Phone	(509) 371-2117												
Title	SAFETY OPERATIONS SPECIALIST												
Originator:	<table border="1"> <tr> <td>Name</td> <td>READDY, MICHAEL A</td> </tr> <tr> <td>Phone</td> <td>(509) 373-8300</td> </tr> <tr> <td>Title</td> <td>OCCURRENCE REPORT COORDINATOR</td> </tr> </table>	Name	READDY, MICHAEL A	Phone	(509) 373-8300	Title	OCCURRENCE REPORT COORDINATOR						
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Phone	(509) 373-8300												
Title	OCCURRENCE REPORT COORDINATOR												
HQ OC Notification:	<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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10/02/2007	09:49 (PTZ)	Jeff Bruggeman	DOE FR										
10/02/2007	10:00 (PTZ)	Mike Boyce	ONC										
Authorized Classifier(AC):													

4)Report Number:	LM--STOL-RF-2007-0001 After 2003 Redesign									
Secretarial Office:	Legacy Management									
Lab/Site/Org:	Legacy Management Site									
Facility Name:	Rocky Flats									
Subject/Title:	Severed underground 220 V electrical cable									
Date/Time Discovered:	09/13/2007 08:00 (MTZ)									
Date/Time Categorized:	09/13/2007 10:00 (MTZ)									
Report Type:	Update									
Report Dates:	<table border="1"> <tr> <td>Notification</td> <td>09/14/2007</td> <td>14:54 (ETZ)</td> </tr> <tr> <td>Initial Update</td> <td>09/24/2007</td> <td>15:14 (ETZ)</td> </tr> <tr> <td>Latest Update</td> <td>11/05/2007</td> <td>11:28 (ETZ)</td> </tr> </table>	Notification	09/14/2007	14:54 (ETZ)	Initial Update	09/24/2007	15:14 (ETZ)	Latest Update	11/05/2007	11:28 (ETZ)
Notification	09/14/2007	14:54 (ETZ)								
Initial Update	09/24/2007	15:14 (ETZ)								
Latest Update	11/05/2007	11:28 (ETZ)								

	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:					
Subcontractor Involved:	Yes T.P. Enterprises				
Occurrence Description:	While preparing a section of road for new road base, a piece of construction equipment ("ripper") severed a live 220 V electrical cable that was only inches below the surface of the road. The severed cable was observed by a worker on the ground, who stopped the operation. There were no injuries or significant operational consequences.				
Cause Description:					
Operating Conditions:	Does not apply				
Activity Category:	Construction				
Immediate Action(s):	The work crew stopped the work when they recognized that an electrical cable had been severed. The Site Lead was notified and initial corrective actions including the procurement of an electrician to ensure safe shutdown, and offsite notifications were initiated.				
FM Evaluation:	An evaluation is ongoing and will be included in the final report.				
DOE Facility Representative Input:					
DOE Program Manager Input:					
Further Evaluation is Required:	No				
Division or Project:	Rocky Flats Legacy Management site				
Plant Area:	Outside of fence				
System/Building/Equipment:	Outside of the industrial area				
Facility Function:	Environmental Restoration Operations				
Corrective Action 01:	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Target Completion Date:01/28/2008</td> <td style="width: 50%;">Actual Completion Date:</td> </tr> </table>			Target Completion Date: 01/28/2008	Actual Completion Date:
Target Completion Date: 01/28/2008	Actual Completion Date:				
	Review procedures and processes that support the development of work scopes, work planning packages, and hazard analyses. Mandate walk-downs of work packages. Ensure only current revisions of drawings and documents are available for use				

Corrective Action 02:	Target Completion Date: 02/04/2008	Actual Completion Date:		
	Evaluate the completeness and effectiveness of the Site Operations Guide and all other applicable site specific and LM checklists for applicability, usefulness, and effectiveness. Further evaluate whether these checklists are used collectively or as applicable to site specific work.			
Corrective Action 03:	Target Completion Date: 11/13/2007	Actual Completion Date: 11/01/2007		
	Review and revise requirements for intrusive work, and ensure the identification and location of any and all utilities are required before breaking ground.			
Corrective Action 04:	Target Completion Date: 11/13/2007	Actual Completion Date: 11/01/2007		
	Include a requirement for a "Line Locator" at all LM sites prior to intrusive work performance.			
Lessons(s) Learned:				
HQ Keywords:	01N--Inadequate Conduct of Operations - Inadequate Job Planning (Other) 07D--Electrical Systems - Electrical Wiring 08F--OSHA Reportable/Industrial Hygiene - Industrial Operations Issues 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical) 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14E--Quality Assurance - Work Process Deficiency			
HQ Summary:	While preparing a section of road for a new road base, a piece of construction equipment severed a live 220-volt electrical cable that was only inches below the surface of the road. A worker on the ground saw the severed cable and stopped the operation. There were no injuries. The Site Lead was notified, an electrician was procured to ensure safe shutdown, and offsite notifications were initiated.			
Similar OR Report Number:				
Facility Manager:	Name	HURSHMAN, MICHAEL R		
	Phone	(970) 248-6468		
	Title	Health and Safety Lead		
Originator:	Name	MAVEAL, THOMAS M		
	Phone	(970) 248-6150		
	Title	HEALTH & SAFETY MANAGER		
HQ OC Notification:	Date	Time	Person Notified	Organization
	09/13/2007	09:00 (MTZ)	Ray Plieness	DOE-LM
Other Notifications:	Date	Time	Person Notified	Organization

	09/13/2007	08:15 (MTZ)	Scott Surovchak	DOE-LM
	09/13/2007	08:30 (MTZ)	Michael Hurshman	Stoller
	09/13/2007	08:35 (MTZ)	Joe Legare	Stoller

Authorized Classifier(AC):

5)Report Number:	NA--LASO-LANL-TA55-2007-0036 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: Pipe Threader Maintenance		
Date/Time Discovered:	09/25/2007 08:00 (MTZ)		
Date/Time Categorized:	10/01/2007 10:55 (MTZ)		
Report Type:	Notification/Final		
Report Dates:	Notification	10/03/2007	19:18 (ETZ)
	Initial Update	10/03/2007	19:18 (ETZ)
	Latest Update	10/03/2007	19:18 (ETZ)
	Final	10/03/2007	19:18 (ETZ)
	Revision 1	10/10/2007	19:19 (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 KSL		
Occurrence Description:	MANAGEMENT SYNOPSIS: On September 7, 2007, a Technical Area 55 (TA-55) Electrical Safety Officer (ESO) was walking down the basement of building PF-4 prior to a planned breaker maintenance outage. He discovered exposed conductors on a cord end of a pipe threader. As according to LANL TA-55 requirements, he mitigated the immediate danger to worker safety by cutting the cord end off. However, on Monday September 10, 2007, the primary user of the pipe threader and trained electrician returned to work to find the cord end cut off and no knowledge of why. She located a second inoperable pipe threader with an ESO inspection sticker on the cord plug.		

She cut the plug off of the inoperable pipe threader and attached it to the usable pipe threader cord using a cord cap. A second planned breaker maintenance outage occurred the weekend of September 22 and 23, 2007. The TA-55 ESO noted that the pipe threader had a plug attached with a cord cap on to the cord with one of his ESO inspection stickers, which was for a different piece of equipment. Since this implied that the pipe threader had not been properly inspected after the plug was attached, he cut the cord end once again. He reported this incident to the Maintenance Manager who then reported it to the Facilities Operations Director (FOD). A critique was called for October 1, 2007 after which the FOD declared this incident a Management Concern, Significance Category 4.

BACKGROUND: In preparing for the planned breaker maintenance outage of September 7-9, 2007, a TA-55 ESO was walking the basement of PF-4. Even though the TA-55 ESO was concentrating on tasks related to the breaker maintenance, when he came across the exposed conductors on the cord end of a pipe threader, he took immediate action to mitigate the safety hazard to workers. He cut the cord end off expecting an electrician the following week to request a replacement Underwriter's Laboratories Inc. (UL)-approved cord end from him and an ESO inspection to be performed after the new end was attached using a cord cap. There are no TA-55 requirements to place a lock-out tag on the piece of equipment in a situation such as this.

On Monday September 10, 2007 a KSL (a LANL subcontractor) electrician came to work prepared to use the one working pipe threader. She was surprised to find the cord end had been cut off since she last used the equipment. There was no tag or sign explaining the reason for this. She spoke with her KSL foreman about the issue, who instructed her to splice in another cord end. The pipe threader was essential for mission-related work. The KSL electrician cut off the cord end to the inoperable pipe threader (frozen vice), which had an ESO inspection sticker. The electrician's assumption was that the inspection sticker was for the cord, not the entire piece of equipment. Therefore, she believed she was attaching an ESO-inspected and approved-for-use cord end onto the working pipe threader.

Typically, the ESO inspection stickers are placed on the piece of equipment. However, last winter TA-55 had a campaign to inspect electrical cords throughout the plant. Therefore, the ESO inspection sticker for the entire piece of equipment was placed on the cords of the pipe threaders.

KSL procedures require a lock-out device to be placed over a faulty cord end with a tag explaining the issue. No such device was used in this case and no tag explaining the missing cord end was present when the KSL electrician spliced in a cord end from an inoperable piece of equipment. The pipe threader was used for the next two weeks.

	<p>A second planned breaker maintenance outage was performed the weekend of September 22-23, 2007. Once again, the TA-55 ESO walked down the basement area where he discovered that the pipe threader had a cord end attached on with a cord cap. Upon a closer look, he noticed that the new cord end had an ESO inspection sticker that was signed by him back in February 2007. The TA-55 ESO was concerned that a proper inspection of the equipment had not been performed after attaching on the new cord end. Therefore, he cut off the cord end once again and informed the TA-55 Maintenance Manager.</p> <p>The Maintenance Manager informed the FOD, who instructed the TA-55 ESO to lock out the piece of equipment until more information on the situation could be obtained. On September 25, 2007 a critique was scheduled for the following Monday, October 1, 2007.</p>
Cause Description:	
Operating Conditions:	Normal
Activity Category:	Construction
Immediate Action(s):	<ol style="list-style-type: none"> 1) The TA-55 Maintenance Manager will draft a procedure to address how to appropriately lock-out and tag-out corded equipment in a situation such as this. This procedure will also cover how to notify the owner and users of the equipment. 2) The pipe threader will remain out-of-service until it can be properly inspected by the TA-55 ESO. 3) KSL will communicate to their employees the importance of the ESO inspection sticker. 4) KSL and the TA-55 Maintenance Manager will develop a Lessons Learned that will be distributed LANL-wide. 5) The TA-55 Maintenance Manager will arrange to have a variety of lock-out/tag-out (LOTO) devices available in the TA-55 Operations Center.
FM Evaluation:	
DOE Facility Representative Input:	
DOE Program Manager Input:	
Further Evaluation is Required:	No
Division or Project:	TA55
Plant Area:	TA55, PF4, Basement
System/Building/Equipment:	Pipe Threader
Facility Function:	Plutonium Processing and Handling
Corrective Action:	
Lessons(s) Learned:	

HQ Keywords: 01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical)
 01P--Inadequate Conduct of Operations - Inadequate Oral Communication
 01R--Inadequate Conduct of Operations - Management issues
 07D--Electrical Systems - Electrical Wiring
 11G--Other - Subcontractor
 12B--EH Categories - Conduct of Operations
 14E--Quality Assurance - Work Process Deficiency

HQ Summary: On September 7, 2007, an Electrical Safety Officer (ESO) discovered exposed conductors on a cord end of a pipe threader in the basement of Building PF-4, and cut off the cord end for worker safety. However, on September 10, 2007, the primary user of the pipe threader and trained electrician discovered the cut cord. Not knowing why, the electrician repaired the cord by attaching a plug from another inoperable pipe threader. On September 21, 2007 the ESO noticed that the pipe threader cord had a plug attached with a cord cap with one of his ESO inspection stickers, which was for a different piece of equipment. Because this implied that the pipe threader had not been properly inspected after the plug was attached, he cut the cord end once again. The incident was reported to the Maintenance Manager and to the Facilities Operations Director. The pipe threader was tagged out of service pending inspection. A critique is scheduled.

Similar OR Report Number:

Facility Manager:

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

Originator:

Name	CORDOVA, LUANNA M
Phone	(505) 667-0598
Title	DATA ANALYST

HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

Other Notifications:

Date	Time	Person Notified	Organization
09/25/2007	08:57 (MTZ)	Lily Reese	PAAA
09/25/2007	11:00 (MTZ)	Ed Christie	NNSA
09/25/2007	11:01 (MTZ)	Melissa Billera	KSL
09/25/2007	11:04 (MTZ)	Chuck Keilers	DNSFB
09/27/2007	15:45 (MTZ)	Lloyd Gordon	ESO

Authorized Classifier(AC): Susan J. Voss Date: 10/03/2007

6)Report Number:	NE-ID--BEA-ATR-2007-0018 After 2003 Redesign		
Secretarial Office:	Nuclear Energy, Science and Technology		
Lab/Site/Org:	Idaho National Laboratory		
Facility Name:	Advanced Test Reactor		
Subject/Title:	Electrical Energy (120 VAC) Found Following Lockout /Tagout (LO/TO) Zero Energy Checks		
Date/Time Discovered:	09/17/2007 11:05 (MTZ)		
Date/Time Categorized:	09/17/2007 11:05 (MTZ)		
Report Type:	Final		
Report Dates:	Notification	09/19/2007	18:15 (ETZ)
	Initial Update	10/31/2007	17:49 (ETZ)
	Latest Update	11/29/2007	17:07 (ETZ)
	Final	11/29/2007	17:07 (ETZ)
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:	A1B3C02 - Design/Engineering Problem; Design / documentation LTA; Design/documentation not up-to-date		
ISM:	2) Analyze the Hazards		
Subcontractor Involved:	Yes Homeland Builders/Nash Electric		
Occurrence Description:	<p>On September 11, 2007, subcontract electricians working under an ATR Operations lockout/tagout (LO/TO) to remove electrical equipment in TRA-676 were using a proximity voltage detector prior to commencing work. Electrical energy was detected from wiring passing through a "4 square" junction box used to join several runs of conduit. The components to be removed were downstream of the junction box which was being used as the checkpoint for the presence of electrical energy prior to actually removing components and wiring. There were no exposed conductors. The subcontractor stopped work and informed BEA Facility and Site Services (F&SS) Construction Management. Work was not scheduled to resume until September 17, 2007.</p> <p>The systems they were removing (heat trace wiring and controllers) had been danger-tagged and locked out by ATR Operations using the latest revision to the building electrical distribution drawing. Zero energy checks</p>		

	<p>on the load side of the identified breakers were completed by RTC Craft Electricians.</p> <p>The ATR Shift Supervisor was informed of the issue on September 17, 2007, by the subcontractor Supervisor. The Shift Supervisor did not allow work to commence in building TRA-676 and informed the ATR Operations Manager. Subsequent investigation revealed that the source of the electrical energy was from a breaker labeled as "spare" (and in SHUT position) on the distribution panel schedule and the referenced drawing. The "spare" breaker had been wired to supply power to a building thermostat for a TRA-676 system, that was to be removed as part of the job. No drawing could be found identifying the spare breaker as being used to supply power in TRA-676 or elsewhere.</p>
Cause Description:	<p>The cause of this event is deemed to be Design/Engineering Problem, Design/documentation LTA, Design/documentation not up to date. Configuration management processes are in place currently to maintain reference drawings accurate as facility modifications are performed on systems and components, historically, this has not always been the case. It cannot be determined when the breaker labeled as spare was connected to the thermostat. It is believed that the breaker labeled "spare" was always connected to a load and the drawing was not accurate in showing the proper configuration. This legacy configuration management problem is a known deficiency. RTC Engineering has actions to remedy this problem and are being worked within existing budget/resource constraints. As such, actions to address overall facility configuration management will not be addressed as part of the corrective action plan.</p> <p>All electrical panels in the ATR and support buildings were checked for shut spare breakers. A significant number of spare breakers in the SHUT position were identified. Having identified several "spare" breakers in the shut position indicates the potential for other reference drawing problems to exist which could cause an event similar to the one in TRA-676 described above. A plan should be prepared to inspect each distribution panel and verify them against the reference drawing and take action based on the findings (as-build the drawing or restore the system to the configuration shown on the drawings).</p> <p>Apparent cause analysis was performed per LWP-13845, Cause Analysis Program.</p>
Operating Conditions:	Abandoned-in-place equipment was being removed from building TRA-676.
Activity Category:	Construction
Immediate Action(s):	<p>Appropriate levels of BEA management and NE-ID were notified of this event.</p> <p>The subcontractor stopped work.</p>

	<p>A critique was held on Monday, September 17, 2007.</p> <p>The breaker labeled as "spare" was added to the LO/TO for the job.</p> <p>All electrical panels in the ATR and support buildings were checked for shut spare breakers with a significant number being reported. A plan is being prepared to take down each distribution panel and verify them against the reference drawing and take action based on the findings (As-build the drawing or restore the system to the configuration shown on the drawings).</p>		
FM Evaluation:	<p>There was no programmatic impact resulting from this event. There was no actual safety impact from this event; however, there was potential for personnel injury since all electrical power was not removed prior to the commencement of the work activity. The training and diligence of the electrical worker in using a proximity tester prior to actual rip-out prevented a more severe outcome.</p>		
DOE Facility Representative Input:			
DOE Program Manager Input:			
Further Evaluation is Required:	No		
Division or Project:	ATR Programs		
Plant Area:	TRA-676		
System/Building/Equipment:	Waste Heat Recovery Facility		
Facility Function:	Category "A" Reactors		
Corrective Action 01:	<table border="1"> <tr> <td>Target Completion Date:01/15/2008</td> <td>Tracking ID:DR 41664</td> </tr> </table> <p>Inspect electrical switchgear, MCCs, Switchboards, Panelboards, etc., for breakers labeled as "Spare" that are in the ON or Shut condition. Prepare tables for each building with the identified breakers based on the voltage level contained in the panel (i.e., 120V, 240V, etc.).</p> <p>Actionee: Parsons, W.</p>	Target Completion Date: 01/15/2008	Tracking ID: DR 41664
Target Completion Date: 01/15/2008	Tracking ID: DR 41664		
Corrective Action 02:	<table border="1"> <tr> <td>Target Completion Date:02/15/2008</td> <td>Tracking ID:DR 41664</td> </tr> </table> <p>For breakers found in the shut position, tag breaker/panel with a warning label - this label will need to remain in place until it is verified that the breaker does not have any wires connected to it.</p> <p>Actionee: DeLong, G.</p>	Target Completion Date: 02/15/2008	Tracking ID: DR 41664
Target Completion Date: 02/15/2008	Tracking ID: DR 41664		
Corrective Action 03:	<table border="1"> <tr> <td>Target Completion Date:12/15/2008</td> <td>Tracking ID:DR 41664</td> </tr> </table> <p>Develop and implement a plan to inspect each distribution panel and verify</p>	Target Completion Date: 12/15/2008	Tracking ID: DR 41664
Target Completion Date: 12/15/2008	Tracking ID: DR 41664		

	<p>them against the reference drawing and take action based on the findings (as-build the drawing or restore the system to the configuration shown on the drawings).</p> <p>Actionee: Criswell, E. B.</p>								
Lessons(s) Learned:	<p>Electrical workers must maintain awareness and a questioning attitude utilizing means such as proximity testers prior to actual work on electrical systems being removed as part of deconstruction activities. This practice is currently part of their on the job training and needs to be continually reinforced.</p>								
HQ Keywords:	<p>01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control 01K--Inadequate Conduct of Operations - Lockout/Tagout Noncompliance (Electrical) 01M--Inadequate Conduct of Operations - Inadequate Job Planning (Electrical) 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance 11G--Other - Subcontractor 12C--EH Categories - Electrical Safety 14D--Quality Assurance - Documents and Records Deficiency 14E--Quality Assurance - Work Process Deficiency</p>								
HQ Summary:	<p>Subcontract electricians at TRA-676, using a proximity voltage detector prior to commencing work to remove heat trace wiring and controllers, detected 120 volts on wiring believed to be de-energized under a lockout/tagout. The electricians stopped work and informed BEA Facility and Site Services Construction Management. Subsequent investigation revealed that the source of the electrical energy was a circuit breaker labeled as a spare on the distribution panel and the referenced drawing. A plan is being developed to identify all ATR and support buildings electrical distribution panel configuration discrepancies, and take appropriate actions.</p>								
Similar OR Report Number:	<p>1. None 2.</p>								
Facility Manager:	<table border="1"> <tr> <td>Name</td> <td>MCDONOUGH, MARTIN B</td> </tr> <tr> <td>Phone</td> <td>(208) 533-4321</td> </tr> <tr> <td>Title</td> <td>ATR OPERATIONS FACILITY MANAGER</td> </tr> </table>	Name	MCDONOUGH, MARTIN B	Phone	(208) 533-4321	Title	ATR OPERATIONS FACILITY MANAGER		
Name	MCDONOUGH, MARTIN B								
Phone	(208) 533-4321								
Title	ATR OPERATIONS FACILITY MANAGER								
Originator:	<table border="1"> <tr> <td>Name</td> <td>OWENS, MARJORIE A</td> </tr> <tr> <td>Phone</td> <td>(208) 533-4563</td> </tr> <tr> <td>Title</td> <td>ATR OPERATIONS FACILITY ADMINISTRATI</td> </tr> </table>	Name	OWENS, MARJORIE A	Phone	(208) 533-4563	Title	ATR OPERATIONS FACILITY ADMINISTRATI		
Name	OWENS, MARJORIE A								
Phone	(208) 533-4563								
Title	ATR OPERATIONS FACILITY ADMINISTRATI								
HQ OC Notification:	<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
Date	Time	Person Notified	Organization						
NA	NA	NA	NA						
Other Notifications:	<table border="1"> <thead> <tr> <th>Date</th> <th>Time</th> <th>Person Notified</th> <th>Organization</th> </tr> </thead> <tbody> </tbody> </table>	Date	Time	Person Notified	Organization				
Date	Time	Person Notified	Organization						

	09/17/2007	11:05 (MTZ)	M. Goriup	NE-ID
Authorized Classifier(AC):	Brooks P. Clements Date: 09/18/2007			

7)Report Number:	NE-ID--BEA-RTC-2007-0003 After 2003 Redesign		
Secretarial Office:	Nuclear Energy, Science and Technology		
Lab/Site/Org:	Idaho National Laboratory		
Facility Name:	Reactor Technology Complex		
Subject/Title:	Mislabeled Breaker Leads to Subcontractor Energizing Unconnected Power Line		
Date/Time Discovered:	09/26/2007 13:45 (MTZ)		
Date/Time Categorized:	09/26/2007 14:55 (MTZ)		
Report Type:	Final		
Report Dates:	Notification	09/27/2007	18:14 (ETZ)
	Initial Update	11/08/2007	11:40 (ETZ)
	Latest Update	11/08/2007	11:40 (ETZ)
	Final	11/08/2007	11:40 (ETZ)
	Revision 1	11/13/2007	14:08 (ETZ)
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:	A5B2C04 - Communications Less Than Adequate (LTA); Written Communication Content LTA; Equipment identification LTA A1B4C02 - Design/Engineering Problem; Design Verification / Installation Verification LTA; Testing of design/installation LTA A1B2C02 - Design/Engineering Problem; Design output LTA; Design output not clear A3B1C01 - Human Performance Less Than Adequate (LTA); Skill Based Errors; Check of work was LTA -->couplet - NA		
ISM:	1) Define the Scope of Work 2) Analyze the Hazards		
Subcontractor Involved:	Yes Homeland Builders		
Occurrence Description:	At approximately 1345 hours on September 26, 2007, a construction subcontractor at the Reactor Technology Complex (RTC) attempting initial energization of the first of two new modular office buildings found that the		

480v power had been applied to the unconnected feeder for the future TRA-1614 building and not to the installed and ready feeder to the TRA-1613 building.

Two new modular buildings are being installed at the RTC and electrical lineups were being performed in order to support electrical testing. Although both buildings will be supplied from the same Power Distribution Panel (PDP), electrical lineups were being performed to support the testing of connections to only one of the buildings, TRA-1613. To simplify the installation and testing process, the subcontractor had planned to lift the electrical leads from the breaker on the PDP supplying the second building, TRA-1614. This was reported as complete on September 25, 2007, at approximately 1730 hours. Temporary labeling of the breakers was also performed at this time.

On September 26, 2007, at 1330 hours, power was established to the PDP and the breaker labeled TRA-1613 was closed in order to power the building TRA-1613 distribution panel. Immediate indications were that power was not being supplied to the building TRA-1613 transformer nor was potential indicated at the building distribution panel.

A proximity test was conducted on the TRA-1614 triplex cable which was thought to be isolated from the PDP by having its leads lifted; this proximity test was positive. The TRA-1613 PDP breaker was immediately opened and a voltage check of the TRA-1613 distribution panel was conducted; this voltage check was negative, this was followed by a proximity test on TRA-1614 triplex cable which was also negative.

An immediate verbal stop work was issued by the Facility & Site Services (F&SS) Facility Project Manager, and the Construction Field Representative and a simple Lock Out/Tag Out (LO/TO) was performed on the PDP TRA-1613 breaker. This was followed by the placement of a LO/TO on the G3 substation breaker, thereby isolating all electrical potential to the PDP and its downstream components.

The TRA-1614 triplex was in an energized condition for less than one minute. During this period a spotter was stationed at the TRA-1614 triplex cable which was located on the ground within the defined construction boundaries, and no personnel inadvertently approached the cable.

Subsequent investigation indicated that the temporary labels on the breakers were switched during the labeling process.

The Subcontractor will submit a formal corrective action letter to BEA Construction Management through the subcontractor administrator addressing their corrective actions specific to this incident. BEA

	Construction Management will review and approve corrective action letter.
Cause Description:	<p>The Cause Analysis technique used to determine the causes associated with this event was a Barrier Analysis.</p> <p>A1B2C02 - Designing/Engineering Problem, DESIGN OUTPUT LTA, Design output not clear The drawings were difficult to read. The specifications were difficult to understand. The specification could be interpreted in more than one way. See Corrective Actions 4 & 5</p> <p>A5B2C04 - Communications LTA, WRITTEN COMMUNICATIONS CONTENT LTA, Equipment identification LTA Had the project provided the subcontractor electricians with a construction drawing identifying equipment designations for the breakers in the PDP, labels for those breakers, and direction on installing labels prior to terminating cables on the breakers there would have been a much better opportunity to prevent this event by properly labeling the breakers and removing the cables from the correct breaker. See Corrective Actions 3 & 4</p> <p>A1B4C02 - Design/Engineering Problem, DESIGN/ INSTALLATION VERIFICATION LTA, Testing of design/installation LTA The project failed to ensure the electrical system was configured correctly prior to executing the partial turnover to the facility. The breaker configuration in the panel and the labeling were not consistent; the breakers were mislabeled. Tests had been performed that ensured the cables were connected as designed but no actions were taken to verify the configuration of the breakers and labels were accurate. See Corrective Actions 2, 3, 4, 6, & 8</p> <p>A3B1C01 - Human Performance LTA, SKILL BASED ERROR, Check of work was less than adequate The subcontractor electrician failed to verify which disconnect in the PDP supplied building 1614 prior to disconnecting the cables. He went by memory of what he had been told. The electrician who disconnected the cables in the PDP was not the electrician who had originally terminated the cables in the PDP. Had the triplex cable to building 1614 been better controlled prior to energizing the PDP, rather than left lying on the ground with exposed ends, this event would have been prevented. There was an urgency to complete the installation of building 1614 and the subcontractor was working extra hours to accomplish this. See Corrective Actions 7 & 9</p>
Operating Conditions:	Normal
Activity Category:	Construction
Immediate Action(s):	1. Performed a voltage check on the TRA-1613 main distribution panel; the

	<p>results were negative.</p> <p>2. A proximity test performed on the TRA-1614 triplex cable; the results were positive.</p> <p>3. Opened the PDP TRA-1613 breaker</p> <p>4. Re-performed the voltage check on the TRA-1613 main distribution panel; the results were negative.</p> <p>5. Re-performed the proximity check on the TRA-1614 triplex cable; the results were negative.</p> <p>6. Issued a verbal stop work for subcontract electrical work.</p> <p>7. Performed a simple LO/TO on the PDP TRA-1613 breaker.</p> <p>8. Made notifications.</p> <p>9. Performed a LO/TO on the G3 breaker placing it in the open position.</p> <p>10. Issued a formal stop work for all construction activities associated with this project.</p>		
FM Evaluation:	The event, while preventable, was rapidly identified and a formal job stop was initiated. Proper fact finding actions were implemented, notifications occurred in accordance with requirements, and extensive corrective actions were generated, reviewed, and implemented.		
DOE Facility Representative Input:			
DOE Program Manager Input:			
Further Evaluation is Required:	No		
Division or Project:	Facility and Site Services		
Plant Area:	RTC		
System/Building/Equipment:	TRA-1613 Electrical Power		
Facility Function:	Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)		
Corrective Action 01:	<table border="1"> <tr> <td>Target Completion Date:11/06/2007</td> <td>Tracking ID:A.I. 41621</td> </tr> </table> <p>Perform an Apparent Cause Analysys.</p>	Target Completion Date: 11/06/2007	Tracking ID: A.I. 41621
Target Completion Date: 11/06/2007	Tracking ID: A.I. 41621		
Corrective Action 02:	<table border="1"> <tr> <td>Target Completion Date:11/07/2007</td> <td>Tracking ID:A.I. 41622</td> </tr> </table> <p>Develop a corrective action plan based on the Apparent Casue Analysis.</p>	Target Completion Date: 11/07/2007	Tracking ID: A.I. 41622
Target Completion Date: 11/07/2007	Tracking ID: A.I. 41622		
Corrective Action 03:	<table border="1"> <tr> <td>Target Completion Date:11/07/2007</td> <td>Tracking ID:A.I. 41623</td> </tr> </table> <p>Perform an extent of condition review to identify potential site-wide issues.</p>	Target Completion Date: 11/07/2007	Tracking ID: A.I. 41623
Target Completion Date: 11/07/2007	Tracking ID: A.I. 41623		
Corrective Action 04:	<table border="1"> <tr> <td>Target Completion Date:10/11/2007</td> <td>Tracking ID:ICARE 41694</td> </tr> </table> <p>Update construction drawing NW07-061 with proper numbering and instructions for labeling Power Distribution Panel breakers. Provide direction to the subcontractor on labeling and verification requirements. Evaluate the remaining construction drawings for adequacy and update as necessary.</p>	Target Completion Date: 10/11/2007	Tracking ID: ICARE 41694
Target Completion Date: 10/11/2007	Tracking ID: ICARE 41694		

Corrective Action 05:	Target Completion Date: 11/28/2007 Tracking ID: AI 41633
	Assign equipment numbers to the applicable electrical equipment installed by this project including the PDP panel and building 1613 and 1614 breakers inside the PDP in accordance with BEA procedures and practices. Apply labels to the electrical equipment.
Corrective Action 06:	Target Completion Date: 10/11/2007 Tracking ID: ICARE 41694
	Examine the Inspection and Project Transfer document to ensure all conditions are met and re-perform the transfer if deemed necessary.
Corrective Action 07:	Target Completion Date: 10/04/2007 Tracking ID: ICARE 41694
	Subcontractor will submit a formal corrective action letter to BEA Construction Management through the subcontractor administrator addressing their corrective actions specific to this incident. BEA Construction Management will review and approve corrective action letter.
Corrective Action 08:	Target Completion Date: 11/28/2007 Tracking ID: AI 41634
	Construction Engineering verify the proper configuration of the electrical devices installed by this project. Install labels to positively identify those components.
Corrective Action 09:	Target Completion Date: 02/22/2008 Tracking ID: AI 41635
	Develop a Lessons Learned about this event highlighting the importance of configuration management.
Lessons(s) Learned:	Control of hazardous energy is as important during construction as it is after construction. Power systems to be energized should be verified to be correctly installed and labeled per approved drawings prior to energizing.
HQ Keywords:	01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous) 01B--Inadequate Conduct of Operations - Loss of Configuration Management/Control 01Q--Inadequate Conduct of Operations - Personnel error 08H--OSHA Reportable/Industrial Hygiene - Safety Noncompliance 08J--OSHA Reportable/Industrial Hygiene - Near Miss (Electrical) 11G--Other - Subcontractor 12K--EH Categories - Near Miss (Could have been a serious injury or fatality) 14D--Quality Assurance - Documents and Records Deficiency 14E--Quality Assurance - Work Process Deficiency 14H--Quality Assurance - Inspection and Acceptance Testing Deficiency
HQ Summary:	While installing electrical services to two new modular office buildings at the Reactor Technology Complex, a 480V triplex wire was inadvertently energized. Two new modular buildings (1613 and 1614) were being installed, and electrical lineups were being performed to support electrical testing of building 1613. Once power had been established to the power

	distribution panel, a breaker was closed in order to power up building 1613, however, immediate indications were that the power was established in building 1614. A stop work order was issued. Subsequent investigation indicated that the temporary labels on the breakers were inadvertently switched during the labeling process.																			
Similar OR Report Number:	1. NE-ID--BEA-ATR-2005-0003																			
	2. NE-ID--BEA-ATR-2005-0004																			
Facility Manager:	<table border="1"> <tr> <td>Name</td> <td colspan="3">McBride, Scott D</td> </tr> <tr> <td>Phone</td> <td colspan="3">(208) 533-4439</td> </tr> <tr> <td>Title</td> <td colspan="3">RTC Facility Complex Manager</td> </tr> </table>				Name	McBride, Scott D			Phone	(208) 533-4439			Title	RTC Facility Complex Manager						
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Phone	(208) 533-4439																			
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Originator:	<table border="1"> <tr> <td>Name</td> <td colspan="3">ALLEN, JEFFREY K</td> </tr> <tr> <td>Phone</td> <td colspan="3">(208) 526-5320</td> </tr> <tr> <td>Title</td> <td colspan="3">OPERATIONS ASSISTANT</td> </tr> </table>				Name	ALLEN, JEFFREY K			Phone	(208) 526-5320			Title	OPERATIONS ASSISTANT						
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Authorized Classifier(AC):																				

8)Report Number:	SC--BHSO-BNL-BNL-2007-0014 After 2003 Redesign														
Secretarial Office:	Science														
Lab/Site/Org:	Brookhaven National Laboratory														
Facility Name:	Brookhaven National Laboratory (BOP)														
Subject/Title:	Unexpected Discovery of an Uncontrolled Electrical Energy Source in Building 490														
Date/Time Discovered:	09/12/2007 13:30 (ETZ)														
Date/Time Categorized:	09/12/2007 14:30 (ETZ)														
Report Type:	Final														
Report Dates:	<table border="1"> <tr> <td>Notification</td> <td>09/14/2007</td> <td>16:04 (ETZ)</td> </tr> <tr> <td>Initial Update</td> <td>11/05/2007</td> <td>16:47 (ETZ)</td> </tr> <tr> <td>Latest Update</td> <td>11/05/2007</td> <td>16:47 (ETZ)</td> </tr> <tr> <td>Final</td> <td>11/05/2007</td> <td>16:47 (ETZ)</td> </tr> </table>			Notification	09/14/2007	16:04 (ETZ)	Initial Update	11/05/2007	16:47 (ETZ)	Latest Update	11/05/2007	16:47 (ETZ)	Final	11/05/2007	16:47 (ETZ)
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Latest Update	11/05/2007	16:47 (ETZ)													
Final	11/05/2007	16:47 (ETZ)													
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:	A2B6C06 - Equipment/ material problem; Defective, Failed or Contaminated; Contaminant A2B3C02 - Equipment/ material problem; Inspection/ testing LTA; Inspection/ testing LTA A4B2C03 - Management Problem; Resource Management LTA; Insufficient manpower to support identified goal / objective
ISM:	2) Analyze the Hazards
Subcontractor Involved:	No
Occurrence Description:	On September 12, 2007, a Tier 1 safety inspection at Brookhaven National Laboratory (BNL) Building 490 Mechanical Equipment Room was in progress when the inspector inadvertently contacted a wall outlet box with the corner of his plastic clipboard, which resulted in an unexpected short circuit and arcing. There was no injury. The location of this wall outlet is in a narrow corridor such that most people must walk sideways to traverse the area.
Cause Description:	A2B6CO6, Lime which emanated from around the seal of a pipe sleeve, severely corroded the electrical outlet. A2B3CO2, Safety inspections have not been performed at the required semi-annual frequency. A4B2CO3, Manpower and resources within the department and Plant Engineering are limited in regard to inspecting the numerous mechanical equipment and utility rooms onsite.
Operating Conditions:	Normal Operations
Activity Category:	Normal Operations (other than Activities specifically listed in this Category)
Immediate Action(s):	The Building Manager and Environmental Safety and Health (ESH) Manager guarded the area to keep personnel from entering until BNL electricians arrived. Flash marks were noted on the clipboard and the wall surrounding the outlet. The electrical lines feeding the outlet were deenergized, terminated and removed. An e-mail message was sent to Laboratory ESH Coordinators and Building Managers to determine if degradation of outlet boxes is a Lab-wide issue. This does not appear to be a Lab-wide issue.
FM Evaluation:	After the electrical power was isolated, inspection of the outlet box revealed

	<p>that the cover was completely corroded, the outlet box was filled with lime secreted from a covered opening above it. This and general dust and debris made the outlet and internal wires indistinguishable as an electrical outlet.</p> <p>The covered opening mentioned above is a pipe sleeve that was poured into the concrete wall when it was built for future expansion for water, steam, sewer or chilled water lines to this mechanical equipment room, which would preclude the need to dig up the area to break open the foundation wall.</p>				
DOE Facility Representative Input:					
DOE Program Manager Input:					
Further Evaluation is Required:	No				
Division or Project:	Medical Department				
Plant Area:	Bldg 490 MER 5				
System/Building/Equipment:	Mechanical Equipment Room				
Facility Function:	Balance-of-Plant - Site/outside utilities				
Corrective Action 01:	<table border="1"> <thead> <tr> <th>Target Completion</th> <th>Actual Completion</th> </tr> </thead> <tbody> <tr> <td>Date:09/12/2007</td> <td>Date:09/12/2007</td> </tr> </tbody> </table>	Target Completion	Actual Completion	Date:09/12/2007	Date:09/12/2007
Target Completion	Actual Completion				
Date:09/12/2007	Date:09/12/2007				
	Isolate and terminate electrical power to the damaged outlet.				
Corrective Action 02:	<table border="1"> <thead> <tr> <th>Target Completion</th> <th>Actual Completion</th> </tr> </thead> <tbody> <tr> <td>Date:09/30/2007</td> <td>Date:09/25/2007</td> </tr> </tbody> </table>	Target Completion	Actual Completion	Date:09/30/2007	Date:09/25/2007
Target Completion	Actual Completion				
Date:09/30/2007	Date:09/25/2007				
	Complete safety inspections of other department mechanical equipment rooms in the department and notify plant engineering management about any findings or concerns.				
Lessons(s) Learned:	Increased diligence is needed to ensure remote, unoccupied areas are inspected on a regular basis.				
HQ Keywords:	<p>01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)</p> <p>01Q--Inadequate Conduct of Operations - Personnel error</p> <p>05F--Mechanical/Structural - Corrosion/Material Degradation/EOL</p> <p>07D--Electrical Systems - Electrical Wiring</p> <p>12C--EH Categories - Electrical Safety</p> <p>14E--Quality Assurance - Work Process Deficiency</p> <p>14H--Quality Assurance - Inspection and Acceptance Testing Deficiency</p>				
HQ Summary:	During a Tier 1 safety inspection of the Building 490 Mechanical Equipment Room, an inspector inadvertently contacted a wall outlet box with the corner of his plastic clipboard, causing a short circuit and arcing. There was no injury. After the electrical power was isolated, inspection of the outlet box revealed that the cover was missing, the box was filled with lime from a				

	dripping flange above it, and the box was severely corroded. The electrical lines feeding the outlet were terminated and removed.			
Similar OR Report Number:	1. SC--BHSO-BNL-BNL-2006-0014			
Facility Manager:	Name	COLICHIO, ROBERT L		
	Phone	(631) 344-8440		
	Title	ES&H MANAGER		
Originator:	Name	KRASNER, KENNETH		
	Phone	(631) 344-2563		
	Title			
HQ OC Notification:	Date	Time	Person Notified	Organization
	NA	NA	NA	NA
Other Notifications:	Date	Time	Person Notified	Organization
	09/12/2007	13:35 (ETZ)	W. Gunther	BNL
	09/12/2007	14:15 (ETZ)	P. Williams	BNL
	09/13/2007	08:45 (ETZ)	A. Janczewski	BHSO/DOE
Authorized Classifier(AC):				

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