

## LOTO

### Practices

#### Working Group

- Dan Ahearn  
MPO  
X 7658
- Rich Biscardi  
SHSD  
X 7760
- Bill Brown  
QMO  
X 4615
- Roy D' Alsace  
PS  
X 3973
- Dan Galligan  
SHSD  
X 2066
- Phil Harrington  
Training Office  
X 5669
- Eric Johannsen  
SHSD  
X 8614
- Ed Nowak  
SHSD  
X 8211
- Ariel Nunez  
F&O  
X 8838
- Kim Mohanty  
CMPMSD  
X 4402
- Rich Rambadt  
Site Resources  
X 631-278-8045
- Paul Sampson  
CAD  
X 7178
- Chris Seniuk  
BHSO  
X 2034
- Gregg Tomasello  
Site Resources  
X 4548

BROOKHAVEN NATIONAL LABORATORY

# LOTO NEWSLETTER

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## LOTO Surveillances

During the month of July 2014, BNL organizations completed 40 Lockout/Tagout (LOTO) surveillances. Of those, 39 were found to have no deficiencies, making July our best month to date! Congratulations, everyone! The only surveillance with a finding was due to a signature that was not readable.

### Number of noted items for improvement by LOTO sub-process—July 2014

LOTO Training	0
LOTO Planning	0
LOTO Application	1
LOTO Removal	0

### Noted items for improvement—July 2014 LOTO Surveillance analysis

- LOTO lock was not personally identifiable

## Lessons Learned: Work Planning and LOTO

Planning upfront is essential to completing your work safely. To show this, here are two examples when workers, while preparing for and performing work, did not recognize all of the possible hazards involved.

In both examples, inadequate work planning, along with a lack of complete zero-energy checks, led to the cutting of live wires. In the first case workers believed that they had LOTO'ed all conductors within a conduit. They had not, and as a result, severed a live 110-VAC conductor. In the second case, workers mistook a lighting fixture as one that was LOTO'ed — it was not — and accidentally included it in the scope of work. This misidentification resulted in a worker cutting a live 277-VAC line.

Investigations are continuing for both events and there may be several reasons for the occurrence of these events, but there are two immediate "take-aways." First, always know what is within a conduit before cutting it. And second, always make sure you know that the equipment you are working on is, in fact, included in the work scope and has been LOTO'ed when required.

Case 1 - On July 30, 2014, at another DOE laboratory, a subcontractor was working under an approved work package to relocate multiple conduits. As a conduit was being cut to prepare for the installation of a new roll-up door, the worker saw sparks coming from the conduit. Work was stopped and appropriate notifications made. A subsequent investigation determined that the conduit contained an energized 120-VAC conductor. The workers believed that the conduit involved supplied receptacles for the north and east side exterior of the building. Lockout/tagout and zero-energy checks were conducted for those receptacles. Unbeknownst to all involved, however, the conduit also contained wires for other receptacles and equipment.

Case 2 - On July 30, 2014, an electrical contractor cut into an energized 277-volt emergency lighting circuit in Building 1005S at BNL. The lighting circuit that the contractor was scheduled to work on had been de-energized. However, the contractor inadvertently included an adjacent unlit emergency lighting fixture as part of the job. The emergency fixture, though unlit, was still energized. The worker experienced a flash when he cut into the power conductor to the emergency lighting fixture, but did not sustain a shock or injury. The worker was evaluated at the Occupational Medicine Clinic and released for work without restriction.

## Q and A

**Question** - What are the categories of LOTO used at BNL?

**Answer** - The three types of LOTO used at BNL are 1) Simple LOTO, 2) Complex Single Worker LOTO and 3) Complex Group LOTO.

Simple LOTO involves a worker who performs the zero-energy verification for themselves on equipment that they are Authorized to LOTO. The work must be conducted at a single location and must have only one form of hazardous energy secured through one isolation point. In a simple LOTO, each worker is responsible for conducting zero-energy verification for themselves.

Complex Single Worker LOTO involves a single worker who performs the zero-energy verification for themselves on equipment that they are Authorized to LOTO. Complex Single Worker LOTOs are implemented when the job requires working in multiple locations or securing multiple hazardous energies or securing energy through multiple isolation points/disconnects. A written plan is required.

Complex Group LOTO involves multiple workers from different crafts, different groups or contractors that are LOTO'ing along with BNL staff. The work may require energy isolation at a single point or multiple points. Overall lockout/tagout control is designated to one Primary Authorized Employee (PAE) who ensures all energies are secured. The PAE briefs all workers on all energies involved and methods of control. A written plan is required.