Welcome NIST Safety Update

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Visiting Committee on Advanced Technology June 14, 2017

AGENDA

Report regularly to VCAT on NIST's safety improvement efforts.



Continual Safety Improvement Drivers

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VCAT and VCAT Subcommittee Recommendations Incident Reporting and Investigation



Enhanced Workplace Inspections



Management and Staff Observations

2014 NIST Safety Climate Assessment Planned Actions

01

EMPLOYEE RIGHTS AND RESPONSIBILITIES

Improve communication to employees of their safety rights and responsibilities.



05

SAFETY TRAINING Improve the quality of safety training.

02 UNSAFE CONDITIONS AND PRACTICES

Provide guidance on addressing unsafe conditions and practices.

MANAGEMENT OBSERVATIONS

Incorporate discussions of safety culture issues into management observations.

03

INCIDENT REPORTING & LESSONS LEARNED

Implement improved incident reporting processes and mechanisms for sharing lessons learned.

06

PERFORMANCE APPRAISALS

Re-emphasize the importance of employees receiving safety performance feedback during performance appraisals.

2017 Safety Climate Assessment Goals



Identify <u>actionable</u> safety opportunities for improvement for supervisors and different NIST work environments.

Identify/uncover key ingredients (policies, procedures, practices) in NIST organizations with strong positive safety cultures.

Create templates for success that can be shared and applied across NIST.

2017 Safety Climate Assessment Assessment Areas

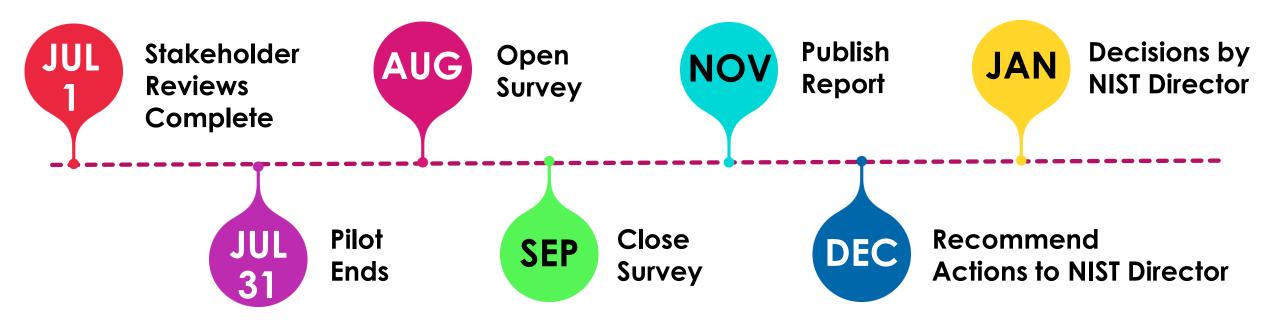
- Workplace Culture
- Communication
- Workplace Practices
- Resources
- Incident Reporting & Investigation

Hazard Reviews

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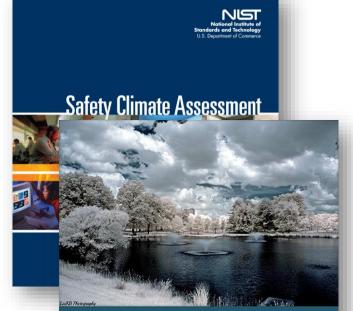
- Safety Training
- Safety Programs
- Free Form Questions
- Supervisor Questions

2017 Safety Climate Assessment Timeline



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Incident Reporting and Investigation



A 2014 Report from NIST's Office of Safety, Health, and Environmen

NIST Safety Climate Assessment EMPLOYEE PERCEPTIONS OF SAFETY AT NIST



2014 Safety Climate Assessment Findings

A large majority of respondents agreed that reporting incidents helps improve safety at NIST.

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- 2 Less than half of respondents use incident reports for lessons learned.
- 3 Apparent disconnect between perceived value and practical application.

Program Improvements

- Improves emphasis on near miss reporting by splitting it out from incident reporting
- Clarifies difference between events and unsafe conditions and practices

Improves templates to strengthen incident and incident investigation reports



Streamlines reporting process for simple events Requires NIST supervisors to act on relevant lessons learned

Requires OSHE to facilitate incidenttrend and lessons learned development

NIST Safety Minutes Sharing lessons learned across NIST

Strongly Motivated



INTERNAL AND EXTERNAL INCIDENTS



WORKPLACE **INSPECTION DATA**



MANAGEMENT & STAFF OBSERVATIONS



NIST Incidents Point to Importance of Controlling Hazardous Energy

Since May, NIST has experienced three safety incidents related to the release of uncontrolled hazardous energy that could have had devastating consequences. All of these incidents point to the importance of following procedures known as lockout/tagout, which are designed to keep workers from being exposed to hazardous stored energy and unexpected re-energization when servicing equipment.

What Happened

Test Before Touch - "Verify Zero Energy"

facilities employee was shocked by a live 277volt wire in a light fixture that he was retrofitting with a new ballast. He had locked the wall switch for the ight in the off position, but failed to verify the wires the light fixture were not live before touching them with bare hands. One of the wires was improperly installed and was still live even though switch was turned off and locked. (IRIS Cas

LESSON LEARNED: Before starting work on equipment that has been locked or tagged out, a qualified person wearing appropriate protective equipment must verify zero energy. In this example, the employee should have verified that the conductor or circuit part was de-energized, by using an acceptable test instrument such as a voltmeter or multi-mete ow NIST's electrical LOTO procedures

No LOTO Performed



LESSONS LEARNED: Placing a lock on the breaker is necessary to prevent equipment from being accidentally energized while a person is in direct contact with it. Even if the breaker was in the employee's direct line



Gaithersburg Building 231, when he noticed bare electrical wires hanging down from a conduit running along the ceiling. The wires were partially blocked from view by a metal cabinet moved to that location by a NIST staff member. Exposed electrical wires in

conduit

Damaged wire insulation

The electrician tested and found the wires were energized and carrying 110 volts of electricity, similar to the voltage delivered by outlets in our homes. He deveneraized the circuit following NIST lockout/tagout procedures, verified the circuit was de-energized, and then removed the wires and

Energized wires or conductors are dangerous shock hazard to anyone who may come in contact with them. Energized wires also can cause electrical fires by shorting to other conductors or grounds-causing an electrical arc-that can jump between the live wire and a grounded surface causing combustible materials in close proximity to ignite.

What Led to the Inciden

conduit

In this case, it could not be determined how the wires were left exposed, but it is a hazard often found at facilities like NIST that have seen many uses over the years. Damaged outlets and switch

"I told my group to remember that many of our buildings are more than 50 years old and have been through multiple waves of modifications and renovations." said Jon Guver. a Material Measurement Laboratory group leader whose staff members work in Building 231. "It's easy to become dulled by things that don't look right, especially when you walk by them every day. It's important to use fresh eves when

inspecting for potential bazards and not assume that something would not have been left in a hazardous state Cover missing from a junction box

What We Can Learn

 Be aware that exposed electrical wires are extremely hazardous: immediately report any identified to the Office of

Engaging Content

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CRITICAL-THINKING EXERCISES



PEER-TO-PEER CONVERSATIONS, **GOOD CATCHES**

Program Development and Deployment 11

PROGRAM = DIRECTIVE + TOOLS + EXPERTISE

OPEN AND TRANSPARENT PROCESS

EXAMPLES

- 2017 Safety Climate Assessment
- 2 Incident Reporting and Investigation Program Improvements

- Extensive engagement of:
- NIST Management
 - Executive Safety Committee
- Safety Advisory Committee
 - Safety Representatives
- NIST Subject Matter Experts

DISCUSSION