



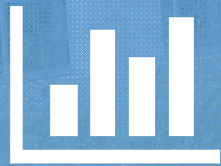
Welcome
NIST Safety Update

Richard Kayser
Chief Safety Officer, NIST

Visiting Committee on Advanced Technology
October 18, 2016

AGENDA

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



FY 2016
INCIDENTS



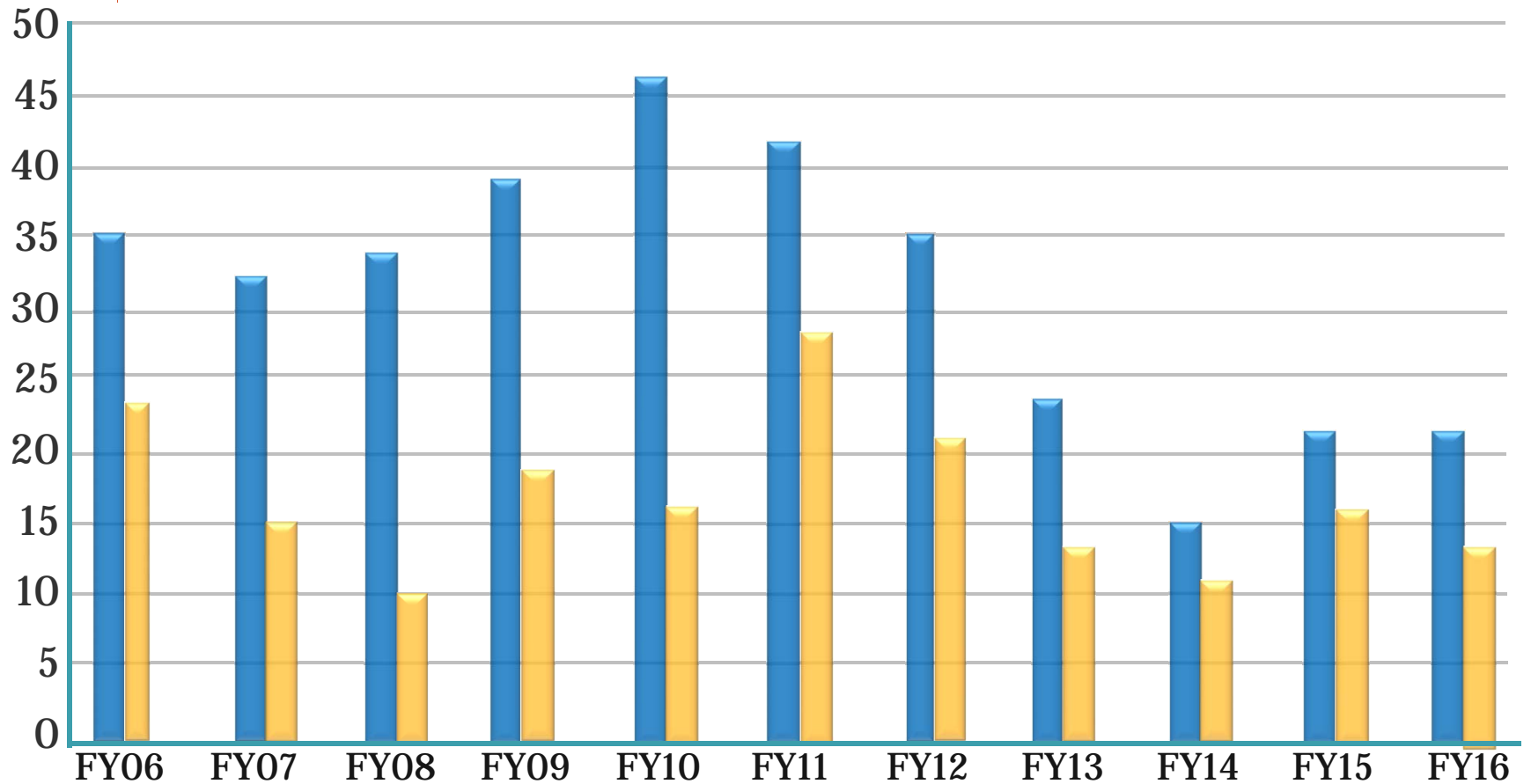
WORKPLACE
INSPECTIONS



RADIATION
SAFETY



NIST Safety Incident Metrics





FY 2016 Injuries and Illnesses

83



Injuries

35%



Slips, trips, & falls

8



Illnesses

31%



Struck by/against



What We're Doing About It . . .

Hearing Losses

- Correct legacy recordkeeping issue
- Analyze data & act on results

Security Turnstiles

- Implemented signage, video, & other measures
- Convened group to recommend solutions to NIST Director

Cuts and Lacerations

- ***NIST Safety Minute*** on safe cutting practices & tools

Slips, Trips, & Falls

- Reconvening STF Team to identify risk reduction actions



Workplace Inspections



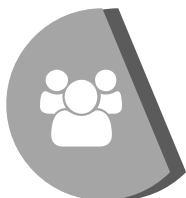
Clear roles & responsibilities



Required frequencies



Trained OU inspectors



**OU-led inspections with
Safety Office notification**





Workplace Inspection Program

7



300+
NIST staff members
trained as inspectors



900+
Pre-inspections
conducted

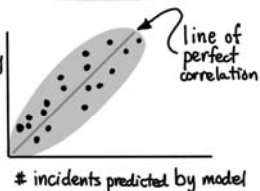


WORKPLACE INJURIES CAN BE PREDICTED

DATA
112 M safety observations
15 K worksites

Predictive Models
80-97% success predicting injuries

incidents that actually occurred



incidents predicted by model

PROACTIVE SAFETY INSPECTIONS ARE BETTER THAN REACTIVE INCIDENT INVESTIGATIONS



Relying on incident data for injury prevention is expensive

OSHA
incident averages

\$7,000 / recordable incident
\$910,000 / fatality



I DON'T CARE

Waiting for an incident to happen before preventing one tells staff you don't care.

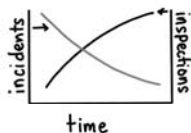
You can eventually run out of incident data to analyze and learn from.

4 SAFETY TRUTHS

THAT REDUCE WORKPLACE INJURIES

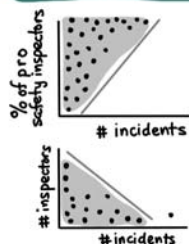
Predictive Analytics in Workplace Safety | A Predictive Solutions White Paper (2012)

1 MORE SAFETY INSPECTIONS PREDICT A SAFER WORKSITE



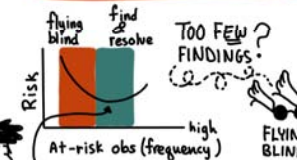
INCIDENTS ↓
as INSPECTIONS ↑

2 MORE INSPECTORS (OUTSIDE THE SAFETY FUNCTION) PREDICT A SAFER WORKSITE



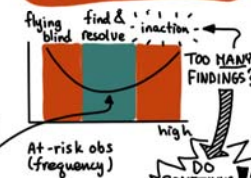
INCIDENT PROB ↓
as NUMBER & DIVERSITY
of PEOPLE
INSPECTING ↑

3 TOO MANY "100% SAFE" INSPECTIONS PREDICTS AN UNSAFE WORKSITE



WHERE YOU WANT TO BE

4 TOO MANY UNSAFE OBSERVATIONS PREDICTS AN UNSAFE WORKSITE



DO SOMETHING!

SKETCHNOTES: Bob DSC 03.07.2016

Timeline

- 06/2008 Contamination event
- 07/2008 NRC Confirmatory Action Letter
- 06/2009 Reopening of Labs
- 09/2009 NRC Public Meeting
- 01/2010 Alternative Dispute Resolution
- 03/2010 NRC Confirmatory Order



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
812 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

March 1, 2010

EA-09-142
NMED 080326

U.S. Department of Commerce
National Institute of Standards and Technology
ATTN: Richard F. Kayser, PhD
Special Assistant for Environment, Safety, and Health
Building 301, Room B111
Gaithersburg, MD 20899-1730

SUBJECT: CONFIRMATORY ORDER (EFFECTIVE IMMEDIATELY) (NRC INSPECTION REPORT 030-03732/2008-001, NRC INVESTIGATION REPORT 4-2008-062)

Dear Dr. Kayser:

The enclosed Confirmatory Order is being issued to the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) as a result of a successful alternative dispute resolution (ADR) mediation session. The enclosed commitments were made by NIST as part of a settlement agreement between NIST and the NRC concerning ten apparent violations identified in the subject inspection report dated November 2, 2009.

I'd like to start by noting that the preliminary findings presented in our own findings as detailed in two reports: NIST's internal investigation and the NIST Ionizing Radiation Safety Committee, which in addition to the five external experts, NIST also commissioned Booz Allen Hamilton to conduct an analysis of the incident. The results of the Booz Allen Hamilton analysis are included in the enclosed report. That all of these findings are consistent with our confidence that we understand what happened, why it happened, and how to prevent incidents in the future.

I'd like to address four key areas today:

- Actions NIST took to respond directly to the incident;
- Actions we've taken to respond to issues identified by the NIST Ionizing Radiation Safety Committee; and
- Actions to strengthen safety at all NIST sites, including NIST Boulder.

Actions in Response to the Incident

As you have heard today, laboratory personnel involved in the incident did not handle safely the type of plutonium sample that was spilled on the floor. About the extent of the spill and about the fact that some of the plutonium was connected to the sanitary sewer system was not immediately available to the public. Delays in communicating this information to the City and the public were not in our news releases and published the texts of several letters to the City and the public in response to the incident.

"Going forward, we are committed to protecting our staff, the public, and the environment by integrating safety into our management and work practices at all levels, working diligently with all staff to ensure that safety is a core value of NIST."



NRC Confirmatory Order

Eleven actions, including:

- Copies of annual external audits for five years
- Radiation safety training of new employees
- Incorporation of ten elements into initial and refresher training
- Institution a hazard analysis and work authorization process
- Defined process for acquiring radioactive material
- Deep-cut assessment of radiation safety program



 **NRC Inspection**
September 2016

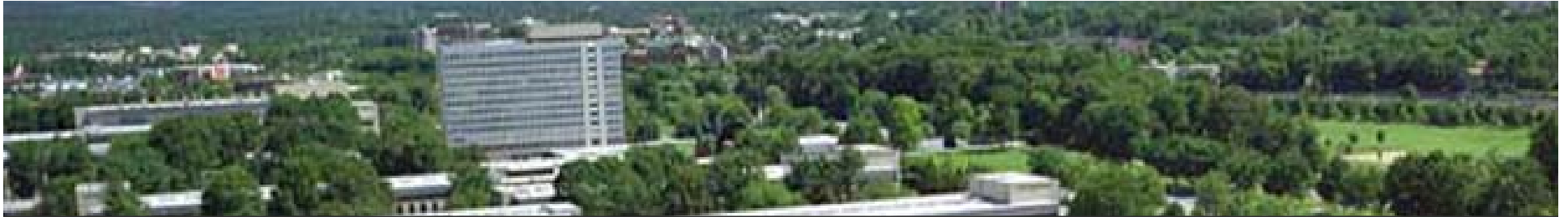
 **5 Days**

 **3 Inspectors**

 **18+ Locations**

 **26 Interviews**

 **17 Safety Areas**



NIST-Gaithersburg radiation safety program provides “a high assurance of preventing significant radiological incidents now and in the future.”





DISCUSSION