Safety Update for VCAT
February 2023

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

Liz Mackey, Ph.D., Chief Safety Officer
Director, Office of Safety, Health & Environment

Agenda

- Status of 9/26 Incident Investigations
- Interim Follow up Actions
- New NIST Safety Culture Program
- Performance Metrics
- IT Application Integration and Improvements
- Risks and Opportunities

Incident Investigations of 9/26/22 Fatality, Update from Oct

- ❑ OSHA investigation ongoing; final report 3/26
- ❑ OSHE Deputy CSO is leading NIST safety incident investigation and root cause analysis team
  - ➢ Fact-finding phase
    - Document incident site
    - Review documents, files, and communications
    - Perform interviews with relevant staff
    - 3rd party finite element modeling and failure analysis of pertinent structural components
  - ➢ Analyze circumstances of event to determine contributing factors, root cause(s)
  - ➢ Develop corrective action plan
  - ➢ NIST Executives review corrective action plan to ensure depth, breadth, and sustainability

Completed or In progress

NIST Interim Actions To Improve Safety

NIST Director FY23 Initiatives

Safety Stand-down (October 7, 2022)

- Recommit to the basic NIST philosophy and policy of taking personal responsibility for safety of oneself and others
- Pause to think about how to perform work safely

Focus on Re-Review of Hazardous Activities in FY23

Accelerate Safety Culture Survey Launch (survey launched12/12/22)

Engage external Safety Commission to review safety program implementation and safety culture (January 2023)

Engage Subcommittee of Safety Commission to review quality, thoroughness of NIST investigation into 9/26/22 fatality and robustness of planned corrective actions

NASEM Workshop to evaluate the effects of the post-pandemic, hybrid work on safety culture, practices, training, mentoring in a research lab environment. (February 2023)

Re-review of Hazard Reviews

NIST Director FY23 Initiative

Chief Safety Officer provides guidance

- Focus on activities with RHI=3, and RHI=2 with catastrophic, severe potential severity
- Fresh eyes, not the PI, previous reviewers
- Include technical and safety expertise
- Observe work, as feasible

Associate Directors (AD) ensure accountability

Office and Laboratory Directors report to ADs on progress target completion in Q3 FY23

		Potential Severity			
		Cata-strophic	Severe	Moderate	Minor
Likelihood of Occurrence	Frequent	RHI=4	RHI=4	RHI=3	RHI=2
	Probable	RHI=4	RHI=4	RHI=3	RHI=2
	Occasional	RHI=4	RHI=3	RHI=2	RHI=1
	Remote	RHI=3	RHI=2	RHI=2	RHI=1
	Improbable	RHI=2	RHI=1	RHI=1	RHI=0

Relative Hazard Index Matrix Adapted from ANSI Z10

Safety Culture Program Implementation

NIST Safety Culture Program Elements

1. Define Safety Culture Attributes
2. Conduct a survey to assess beliefs
3. Develop Action Plan
4. Assess actions and behaviors
5. Recognize and reward safety improvements
6. Encourage engagement and participation
7. Sustain and improve through learning environment and questioning attitudes

1. **Leaders demonstrate they value safety through their actions and engagement.**
2. **Leaders, managers and supervisors set clear expectations for safety and exercise accountability.**
3. **Everyone at NIST takes personal responsibility for their safety and the safety of others. (NIST P 7100)**
4. **Everyone, at every level, participates in safety activities that help maintain and improve safety.**
5. **Everyone at NIST is vigilant in helping to identify and mitigate workplace hazards.**
6. **Safety is routinely part of the conversation to keep our focus on workplace safety, reinforce safety requirements.**
7. **Learning to work safely and improve safety is part of professional development throughout one's career.**
8. **Employee safety and wellbeing are valued and supported throughout the organization.**
9. **Continuous improvement of safety is integral to operations.**

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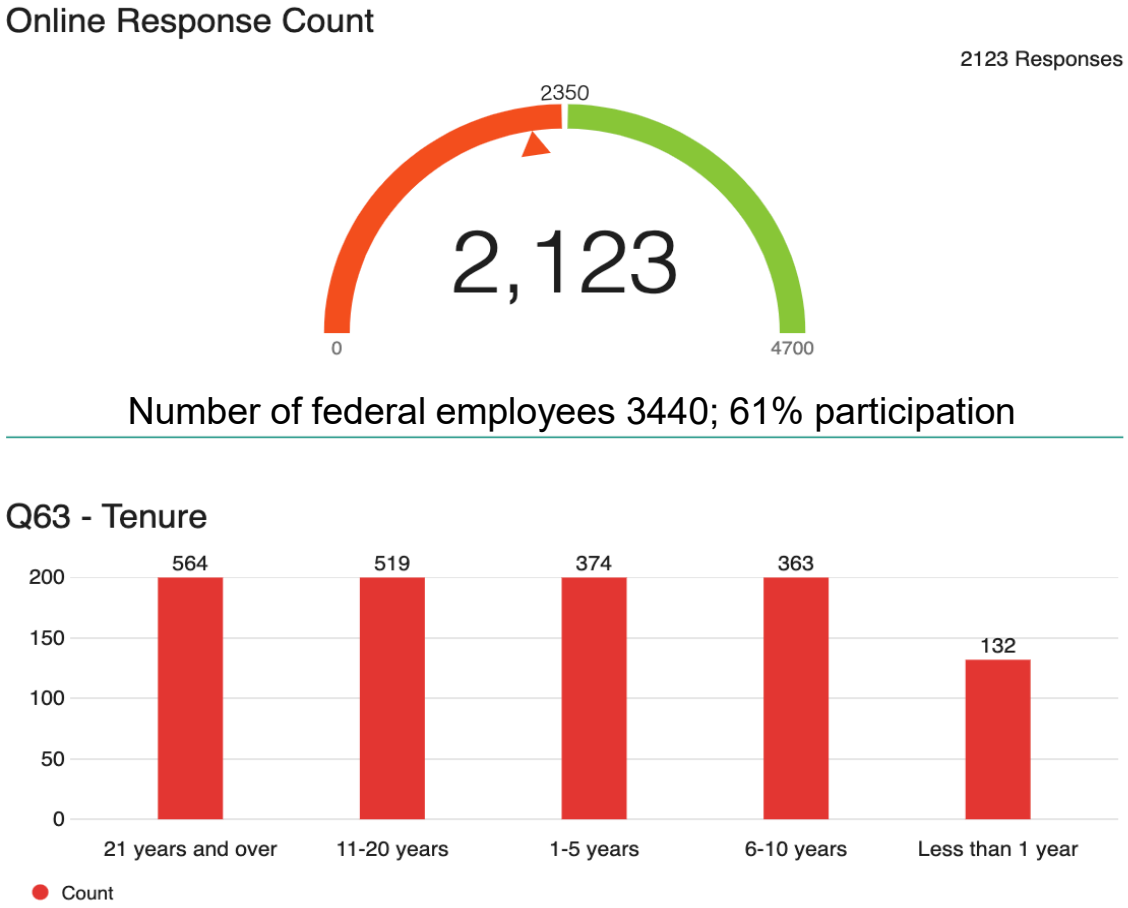


NIST Director FY23 Initiative : Enhanced timeline

Performance Metrics and Continual Improvement

- ✓ Safety Management System (82% complete)
- ✓ Communications Data (average 70% click rates, webpage views)
- ✓ Training Data (course completion)
- ✓ Safety Culture Survey Results (every three years, issue 2023)
- ✓ Workplace Inspection Data (inspections, 96% closed deficiencies)
- ✓ Incident Reporting and Investigation Data (see comparison with peers)
- ✓ Corrective Action Data (92% completed)
- ❑ Monitoring Measuring and Assessments (under development)
  - ❑ Corrective and Preventive Actions (under development)
- ❑ Management Observation Visits (no data collected at the NIST level)

Leading Indicators

Lagging Indicators

Under Development

Safety Management System Directives, Update from Oct

Status Update

FUNDAMENTAL SAFETY (Total, 15 programs)

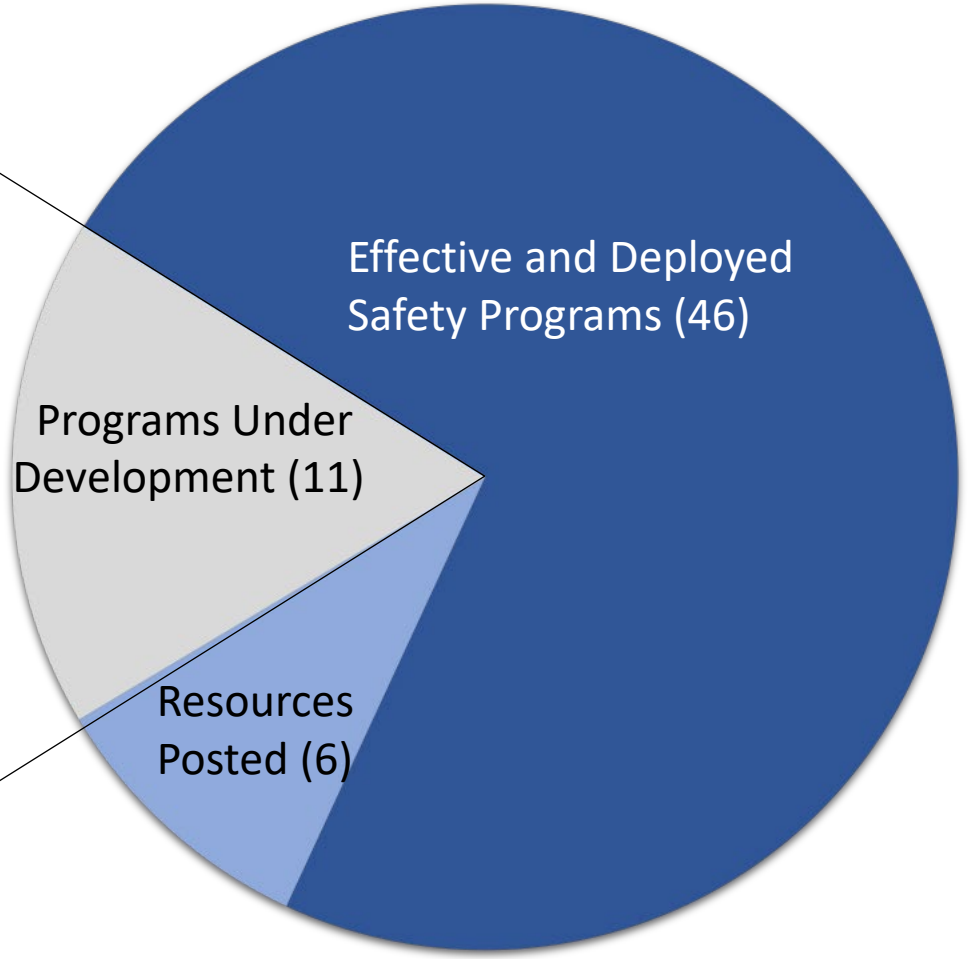
- Safety Culture (Suborder approved; training planned for NIST General Safety and Leadership)
- Contractor Safety
- Monitoring Measurements and Assessments (FY24)
- Change Management (OSHE Draft)
- Corrective and Preventive Actions (OSHE Draft)
- Documents and Records (Approved, training TBD)

TECHNICAL OCCUPATIONAL SAFETY AND HEALTH (Total 24 programs; 6 resource pages)

- Electrical Safety (Notice)
- Walking Working Surfaces (Resource)

ENVIRONMENTAL (Total 14 programs)

- Gaithersburg Wastewater
- Boulder Wastewater (OSHE Draft)
- Stormwater Management (OSHE Draft)



Communications in FY23 to date (2/1/23)

- Weekly emails to NLB, Incident Summary
- NIST emails to notify staff of changes in COVID Community Levels and mask requirements
- Safety Culture Survey announcements, reminders
- Safety Standard Newsletter (Issued in November)
- Incident prevention: safe disposal of sharps
- Winter weather safety, and NIST Library – OSHE collaboration on winter safety equipment

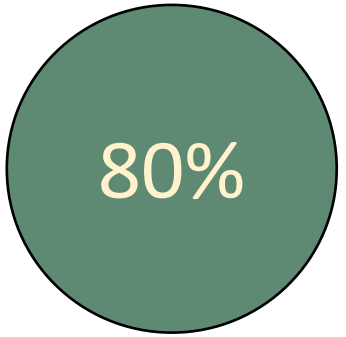
Safety Education and Training Cumulative Data

NIST General Safety

Total current NIST staff with records of completion: 4,130

- FY23: 150 to date
- FY22: 314

Total current NIST staff with outstanding training: 1,064

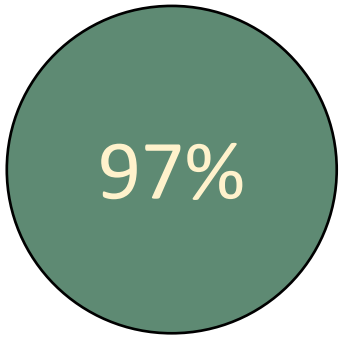


NIST Safety Leadership

Total current NIST staff with records of completion: 509

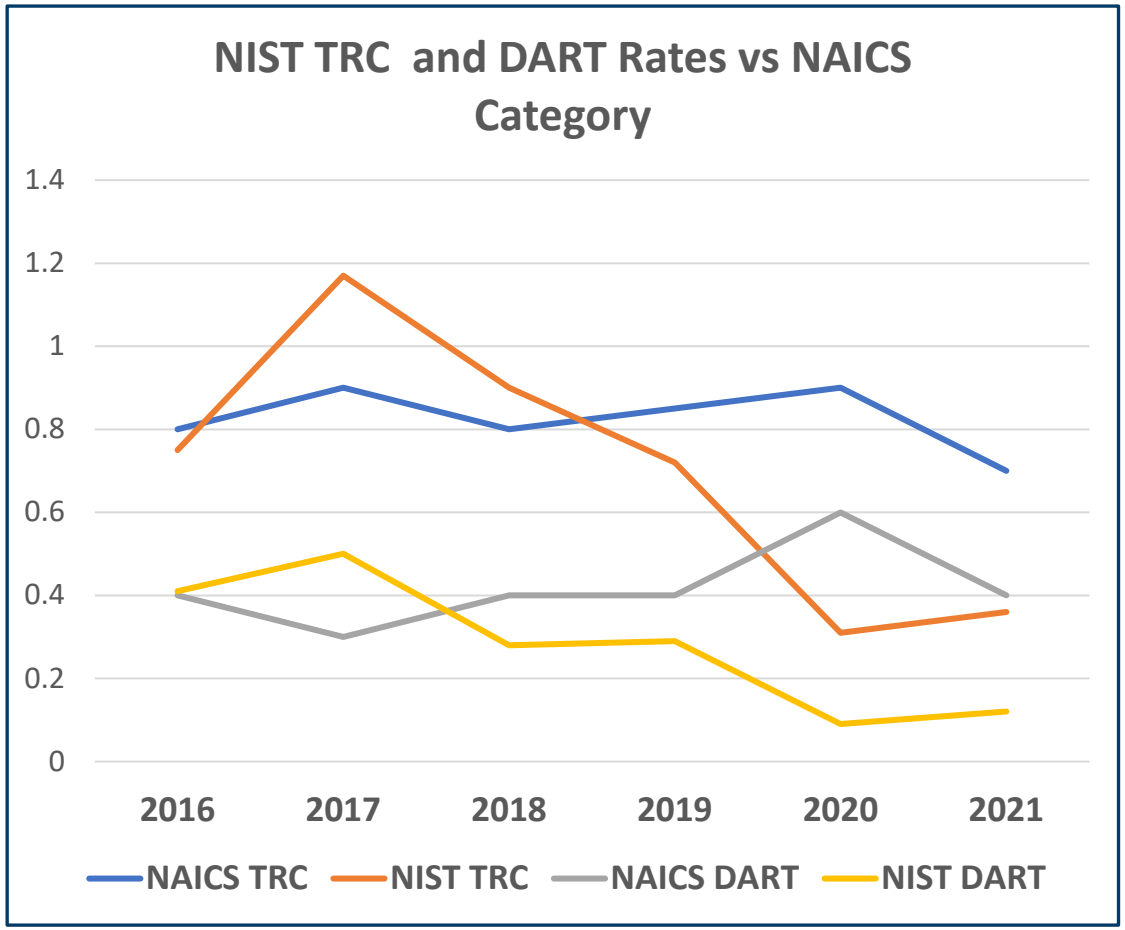
- FY23: 7 to date
- FY22: 10

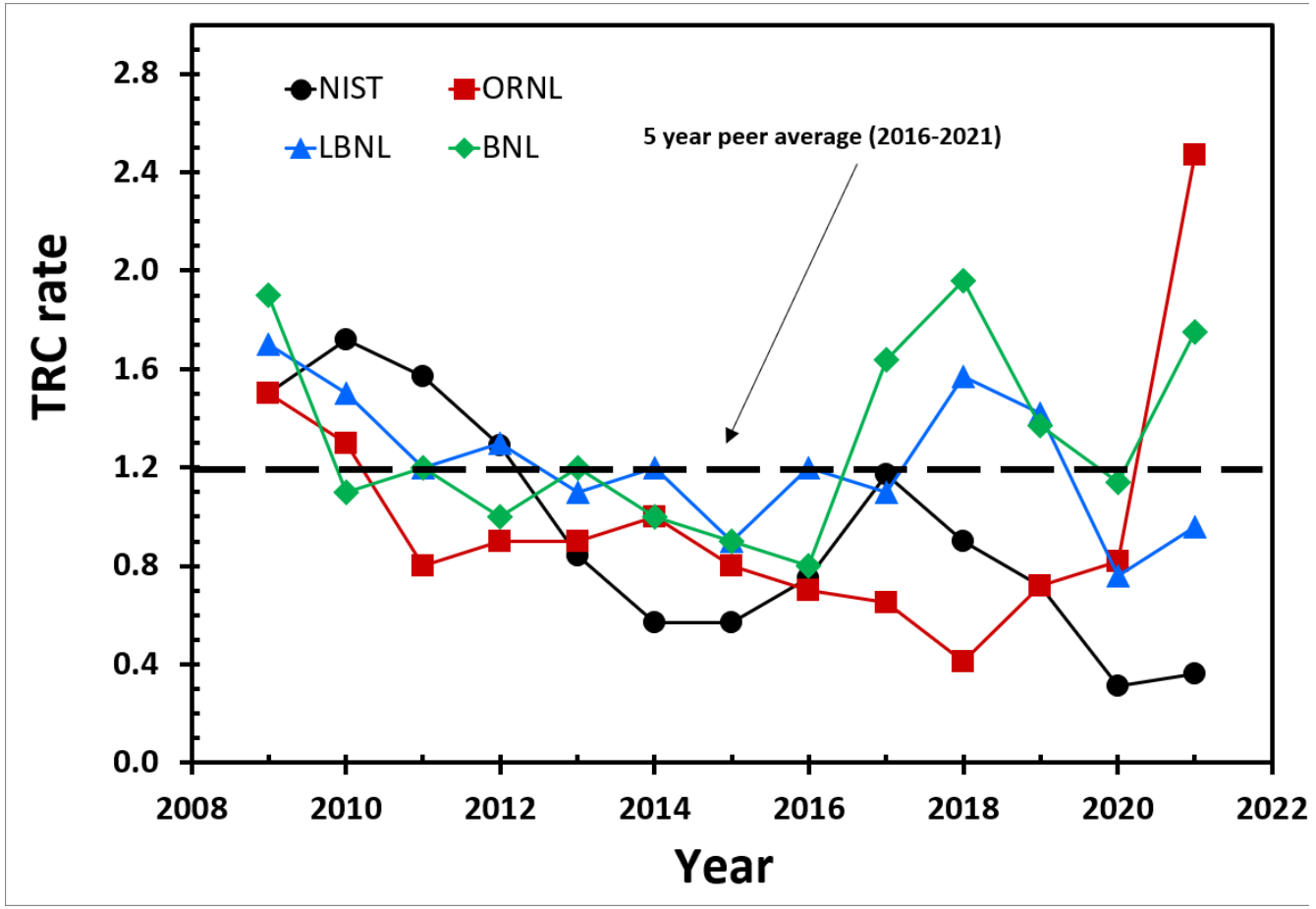
Total current NIST staff with outstanding training: 16



Data from Jan, 30 2023

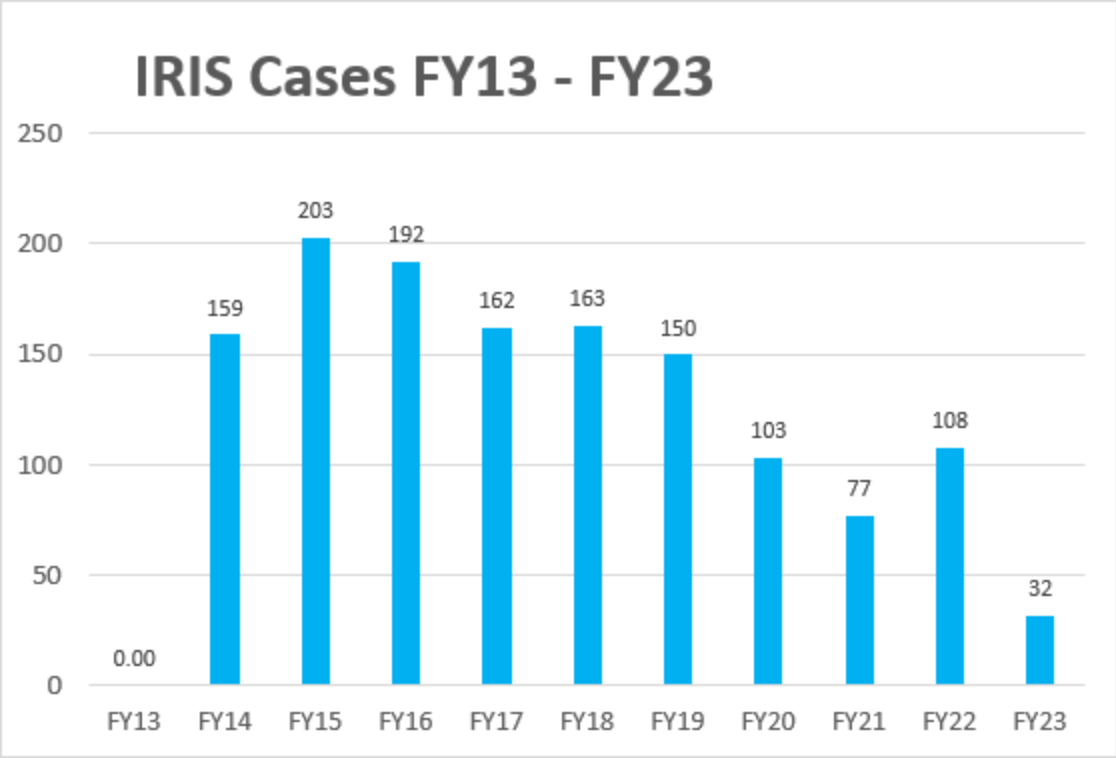
Comparison with Industry Standard and DOE Labs: Total Recordable Case and Days Away, Restricted or Transferred Rates





NIST RC and DART rates compared with Bureau of Labor Statistics industry category for Research and Development in the Physical, Engineering and Life Sciences, and Dept. of Energy laboratories with similar work environments

Incident Reports FY23, to date (2/1/23)



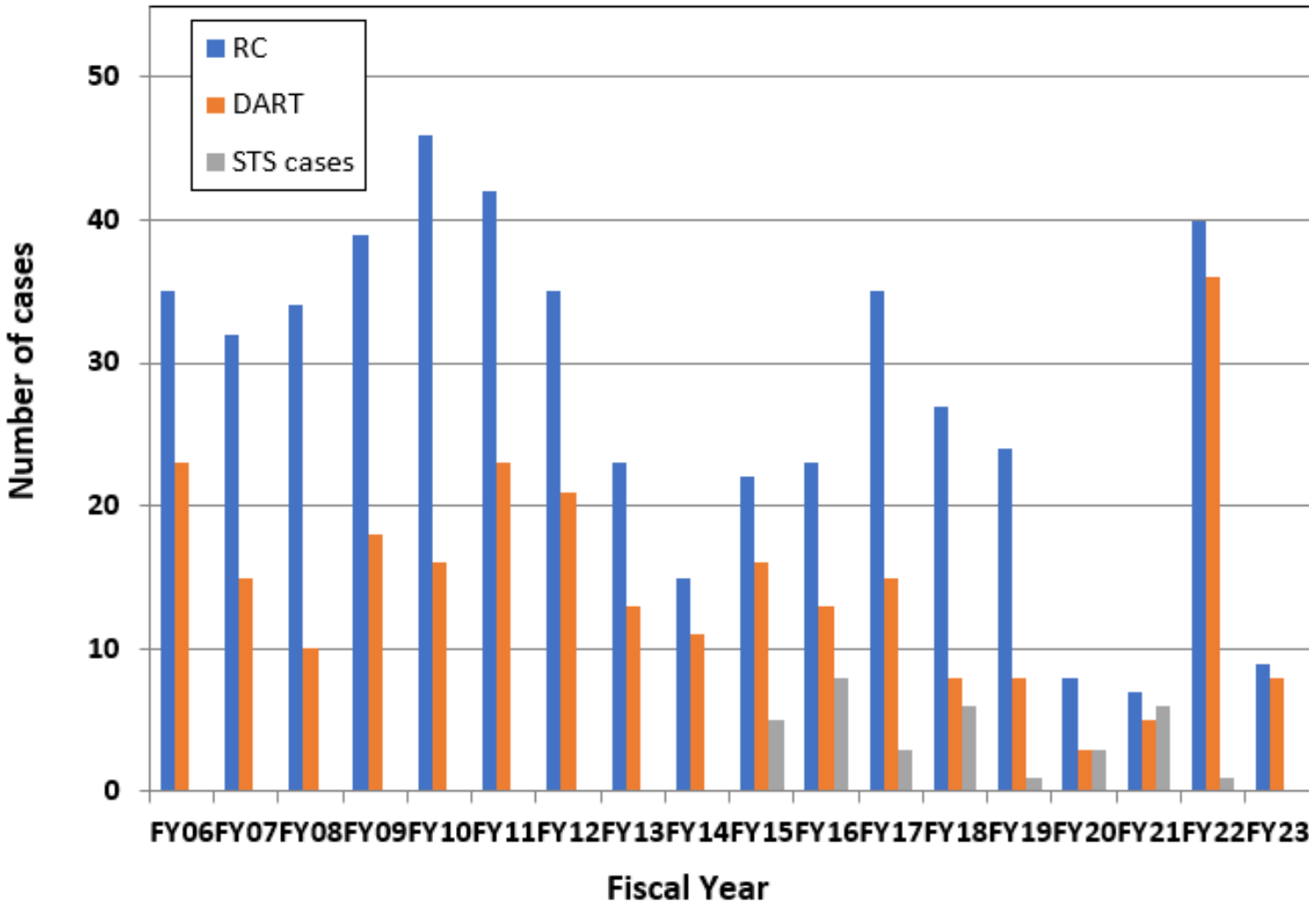
Total reports includes all incident and near misses

Incident and Near Miss Type	Number of Cases	OSHA Recordable Cases (DART)
Injury	11	3 (2)
Illness	9	6 (6)
Near Miss	6	
Property Damage	2	
Contamination by Radioactivity	0	0
Spill/Release	2	
Exposure	0	0
Other	2	NA
Total Cases FYTD	**32**	9

*All illnesses are work-related COVID cases

** 2 DART injuries; 6 DART illnesses

OSHA Recordable Cases and Subset that Represent Days Away, Restricted or Transferred



Recordable Illnesses: n=6 cases* all travel-related, COVID illnesses

Recordable Injuries (n=3 cases):

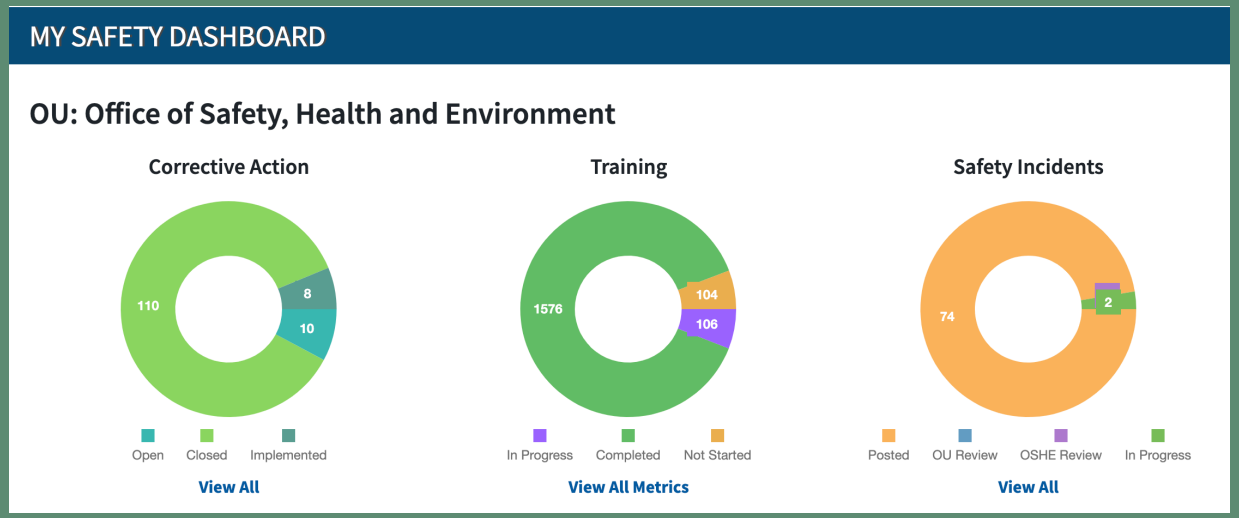
- *Slip/fall in restroom results in concussion possibly due to wet footwear. Corrective Action: email sent to staff on situational awareness for potential slip hazards; info on winter safety and slipping hazards.
- *Back and shoulder strain during removal of barrel from fuel oil burner in facilities (under investigation)
- Laser eye injury: diffuse scattering during laser alignment results in extended visual interference. Interim action: medical attention. (under investigation)

*DART

Ongoing OSHE Support for NCNR, Update from Oct

- NCNR Director and CSO co-chair NIST NCNR Enforcement Actions Support Team
- CSO *ex officio* position on the TR-5 Safety Evaluation Committee (SEC) by charter
- *New:* OSHE Radiation Safety Officer serves on the Reactor Restart Subcommittee of the SEC
- OSHE Radiation Safety staff embedded in NCNR, OSHE general safety embed position posted
- OSHE staff participates on SEC subcommittee for
  - Qualification and Training Review
- OSHE safety embed in NCNR, position posted
- Participation in committees formed to meet CO
  - Safety Culture Program (CSO)
  - Employee Concerns Program (DCSO)

IT Applications: Improve Integration among systems



1. Embed Safety Training System link in MML HRA system
2. Expand My Safety Dashboard Capabilities- link to data
3. Door-signs are linked to Chemical Inventory to update NFPA information
4. Single database for all supervisor actions: inspection deficiencies, incident and audit corrective and preventive actions
5. Improve workplace inspection application

Safety-Related Risks and Opportunities: 30,000' View

Risks	Opportunities
Ageing infrastructure	Prioritize funding to address facilities issues; collaboration between facilities and safety
Safety Management System is not fully integrated into operations	Strengthen partnerships and provide safety services in a manner that facilitates integration Finalize and implement new Change Management Program
No audit or assessment program in place to assess safety compliance	Develop and implement Monitoring, Measurements and Assessment Program
Safety complacency	Create conditions to strengthen safety culture, NIST-wide, at all levels

Questions or suggestions?