

Environmental Health and Safety

Annual Report 2019-2020

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Assistant Vice President
A. David Inyang



“ Welcome to EH&S’ FY20 annual report. What started out as another busy year of providing environmental management, health, and safety services to our campus community ended with our world as we knew it turned upside-down. This annual report reflects that through it all, EH&S staff continued to provide essential support, though often in new ways and in different capacities. We are proud of the efforts that our staff put forth to ensure those essential campus services were provided in a healthful and safe manner.

And a quick word [about our staff...](#)

Behind the montage of friendly faces is a group of technically trained, educated and credentialed professionals with over 600 years of collective experience. 97% of EH&S staff have at least a bachelor’s degree, 40% masters degrees and 14% have PhDs. Further, over 50% have professional certifications in disciplines including biological safety, hazardous materials management, emergency management, industrial hygiene, general safety, laser safety, and training and communications. It takes a lot to support the varied functions across ISU, and EH&S staff are always prepared to provide that support. ”

– A. David Inyang



What's Inside?

Annual Report 2019-2020

Our Mission

Prevent illness and injury, protect the environment, and connect the university to the message of safety and preparedness.



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Everyone. Home. Safely.

Valued Connections

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In Real Time

Remember this?

[After a two-hour and 24-minute delay, university officials cancelled Iowa State's season opener against South Dakota State at MidAmerican Energy Field at Jack Trice Stadium.](#)

Or this?

[The first half featured a pair of delays totaling two hours and 55 minutes due to lightning in the vicinity of MidAmerican Energy Field at Jack Trice Stadium.](#)

Weather can change in a matter of minutes. The need for real-time weather data on campus was previously dependent on the National Weather Service and other entities. While the data from those places was valuable, real-time data for campus would be even more valuable.

Through a partnership with Iowa State University Athletics, the Department of Public Safety, and EH&S, a [WeatherSTEM](#) was purchased and installed at MidAmerican Energy Field at Jack Trice Stadium. The WeatherSTEM provides real time weather data used to monitor and make immediate decisions for athletic events and any other events on campus.



The WeatherSTEM provides a live stream from two cameras, the temperature, closest lightning strikes, rain rate, wind speed, field temperature, live radar, and current weather warnings. In addition, the WeatherSTEM has a [Twitter page](#) and reports out weather information.



EH&S wants to get everyone home safely, and the WeatherSTEM is another tool that helps us achieve that goal.

See what is happening live:

<http://story.weatherstem.com/iowastate>

Sources:

<https://cyclones.com/news/2018/9/1/football-iowa-state-sdsu-game-cancelled.aspx>

<https://cyclones.com/news/2019/9/14/football-cyclones-fall-to-iowa-18-17.aspx>

Leveraging Expertise on Campus

As COVID-19 raced through the State of Iowa, Story County, and Iowa State University (ISU), personal protective equipment shortages became an urgent concern for medical facilities. Looking for methods to preserve dwindling supplies of personal protective gear, specifically filtering face-piece respirators (N95 respirators) used when caring for increasing numbers of COVID-19 patients, several groups began looking at various methods being utilized by other medical providers across the U.S. to extend the N95's useful life. Ultimately, the groups coalesced into a working group under Workforce Protection that was coordinated by The Center for Industrial Research and Service (CIRAS). The challenge: to preserve existing stock of N95 respirators as long as possible, develop a method of decontaminating them quickly, safely, and in quantity.

EH&S biosafety and industrial hygiene specialists partnered with ISU Lab Animal Resources and Thielen Student Health Center in applying a vaporized hydrogen peroxide technology to decontaminate large numbers of used N95s. This process is normally used to decontaminate research animal spaces. EH&S secured a

location with controllable ventilation, obtained necessary supplies, and completed successful trial runs. The result of the project was a safe process, with no residual hydrogen peroxide, after which ISU could return decontaminated respirators to their original users for safe reuse. Thankfully, the process has so far been needed by neither campus nor local medical providers.



For the Greater Good

When the Iowa Department of Homeland Security and Emergency Management (HSEMD) needed help to dispose their stockpile of expired Civil Defense radiation kits, EH&S was willing and able to assist.

After four trips to Camp Dodge, EH&S picked up:

- 31+ pallets of boxed radiation detection kits.
- 3,366 radiation detection meters, (1,160 with installed radioactive check sources).
- 3,000+ personal pocket dosimeters.
- 1,694 chargers for the pocket dosimeters.



Once materials arrived in our regulated materials facility, EH&S staff disassembled the kits into component parts. This resulted in nearly five tons of scrap metal and electronic waste that was taken to the local recycling facility.

Additionally, HSEMD turned over 9,000 emergency medicine tablets that EH&S destroyed by incineration. Similarly, quantities of penicillin and other pharmaceuticals were collected and incinerated.

Why ISU EH&S? EH&S is uniquely suited for this type of work because of our expertise handling both radioactive waste and electronic waste. Further, HSEMD provides funds to maintain a State of Iowa Radiological Emergency Response Team (RERT) at EH&S. This existing relationship made the cleanout collaboration possible and this activity replaced several RERT drills that were cancelled due to the COVID-19 pandemic.

There are many benefits to the HSEMD/ISU EH&S partnership. This project realized significant cost savings to Iowa taxpayers by avoiding the costs of hiring a private contractor for such a complex project.



Prepared Campus

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Images used in this article were taken prior to March 2020

Setting Them Up for Success

Over the past 20 years, nearly 900 incoming graduate students working in or managing laboratories on campus have completed EH&S' Laboratory Safety Orientation.

The Laboratory Safety Orientation course is offered annually to introduce graduate students to the finer details of safely working in a laboratory as they transition from being an undergraduate to graduate student. From writing SOPs to properly managing chemical waste and extinguishing fires, the topics covered provide students the basics to work safely in their laboratory and give them access to EH&S safety professionals.

EH&S values the connections we have with laboratory personnel on campus. The Laboratory Safety Orientation program continues to offer us the opportunity to connect with ISU students and help lay the foundation for safe and successful work and research in campus laboratories.

Something Old, Something New

7,421 is the number of Iowa State University faculty, students, and staff who completed Fire Safety and Fire Extinguisher training in our online format. The total number of completions is a record for any EH&S safety course and accounts for 10.43% of all online courses completed in [LEARN@ISU](#).

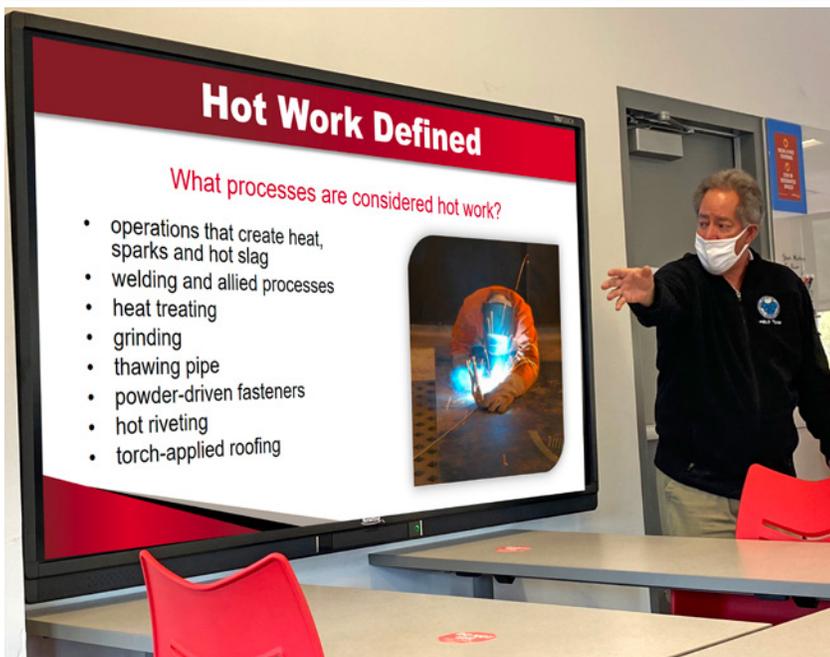
It is also significant as EH&S continues to share our message of getting everyone home safely. While Fire Safety & Fire Extinguisher training is not a new course, the core value of delivering effective communication remains clear as we continue to connect the university to the message of safety and preparedness.

In August, EH&S rolled out its first hybrid learning course, Forklift Operator Safety. While hybrid learning is not new to campus, it was new to EH&S. The new course provides operators an online module and the ability to perform a hands-on driving test in their



facility, using their own equipment under the supervision of a trained evaluator. With this hybrid option, forklift operators no longer must wait weeks for the next available session. This format also enables units to onboard and train forklift operators in days vs. weeks or months. The new hybrid option is a much more efficient solution and benefits every forklift operator at the university.

Up In Smoke



Long-time Iowa residents will remember the downtown [Des Moines Younkers Building Fire](#) that occurred in March, 2014 . The cause of the fire was undetermined; however, investigators suspected embers from work done in the building caused the fire. You ask, “Why is this important to Environmental Health and Safety (EH&S) at Iowa State?”

Article: [Younkers Building Fire](#)



Hot Work Area
Sukup Hall

EH&S Fire Safety is responsible for the oversight of the ISU Hot Work program. The Hot Work program ensures that fire-prone activities defined as hot work are controlled either by permitting or by being limited to locations called Designated Hot Work Areas (DHWA). The goal of the program is to make sure fires like the one at the Younkers building do not happen on campus.



This past year, EH&S inspected and certified three new DHWAs and re-certified 15 DHWAs on campus. All other hot work on campus is done via the hot work permitting process. To ensure ISU personnel are trained on Hot Work and the procedures to be followed during hot work, EH&S Fire Safety holds regular, required classes. In addition to training ISU personnel, EH&S works with university clubs to provide hot work training.

There are plans for more updates in 2021, including a new online training course that would allow units using Hot Work procedures to train new employees faster, and provide refresher training to existing employees in an on-demand format.

Health Matters

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Tracking Animal-Caused Injuries

In 2020, EH&S completed a project that evaluated animal-caused injuries across campus. For CY19, there were 40 animal-caused incidents reported by ISU employees, which represented 7% of the total number of incidents reported. From 2016 to 2020, there was a campus-wide downward trend in the number of OSHA recordable injuries while the total number of incident reports increased. This suggests that ISU employees are reporting hazards and unsafe working conditions before they cause serious injury. During this same time period, there was also a slight decrease in animal-caused injuries. While there is not enough data to make a definitive conclusion, one explanation for the small decrease in animal-caused injuries could be EH&S' renewed emphasis on incident

investigations and follow-ups, particularly for animal-caused incidents. The number of animal-related investigations increased from 67% in 2017 to 100% in 2019.

An incident investigation generally results in recorded recommendations to prevent recurrence of the incident. The percent of investigations with corrective actions recorded increased from 42% in 2017 to 73% in 2019. Optimally, an increase in corrective actions as a result of additional investigations should aid in mitigating future animal-caused employee injuries.

Images used in this article were taken prior to March 2020

A Little Bit of History



Before any campus building renovation or demolition begins, EH&S conducts a thorough building inspection to identify asbestos-containing materials to prevent worker exposure and release of asbestos into the environment. EH&S then works jointly with ISU Procurement Services and Facilities Planning and Management to secure the services of an abatement contractor to complete the removal of asbestos-containing materials.



Prior to the March 2020 demolition of the Insectary Building, abatement crews spent nearly two months removing asbestos-containing floor tiles, mastics, caulking, pipe insulation, acoustical ceiling textures, and roofing sealants. As part of EH&S' mission to protect the environment, staff also coordinated the removal of fluorescent light bulbs, ballasts, mercury switches, hydraulic oils, and other discarded chemicals; and performed a radiation decommissioning survey and site investigation of the Insectary to ensure the structure was free of radiation prior to demolition.



Over the course of the project, EH&S coordinated regulatory-required notifications to the Iowa DNR and Iowa DPH, developed project specifications, monitored the safe removal and disposal of asbestos containing materials, conducted visual inspections to verify all specified materials were removed, and completed air monitoring to assure that asbestos was not released to the surrounding environment.

Leading by Example

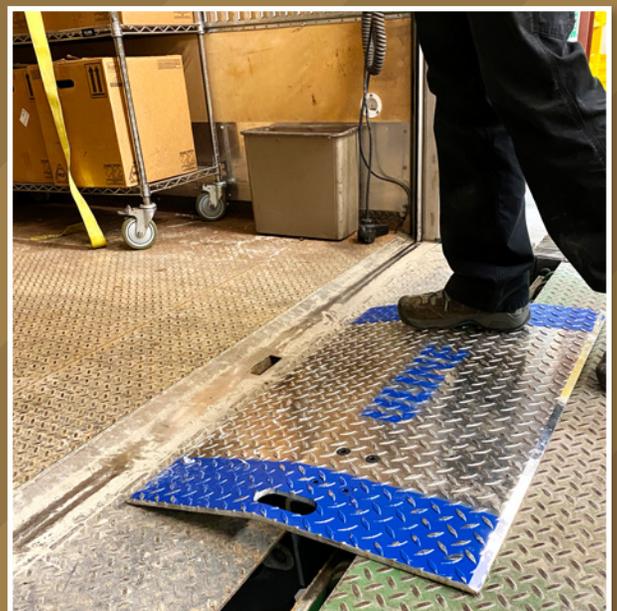
As safety experts, it is paramount we lead by example. What does that mean? In addition to our individual safety responsibilities, EH&S has its own safety committee that works to ensure that our workplace is free of recognized hazards.

Annually, the EH&S safety committee walks its entire facility, identifying potential safety issues, and providing suggestions for corrective actions. Though one would hope that EH&S would always be hazard free, we have found the process beneficial, having identified several items that needed to be addressed. Further, we take lessons learned and examples from our building and share them across campus when inspecting other spaces.



Active safety committees (with the support of management) are an important part of a positive safety culture. They engage and empower the workforce to improve workplace health and safety by increasing awareness of potential workplace hazards, facilitating communication among employees, supervisors, and managers, and supporting the development of strategies to create a safer work environment.

In concert with the Operations and Finance Division's "Safety Strategy," EH&S' safety committee meets monthly, discusses incidents, maintains a safety metrics dashboard, and communicates to the department important safety messages throughout the year. Further, the safety committee has been supported by management in the purchase of various safety related items. Examples of recent safety committee activities include purchasing foot traction devices (Yak Trax), obtaining a dock plate to reduce a fall hazard (corrective action identified via of an incident investigation), and obtaining anti-fogging supplies to address fogging problems caused by wearing of face coverings.



Prepared Campus

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10 Years of Fire (Safety)

For the past 10 Septembers, the EH&S Fire Safety group has participated in national Campus Fire Safety Month activities by hosting Campus Fire Safety Day. In that time, over 3,000 students, faculty, and staff have participated in hands-on activities to increase their knowledge of fire safety and the impacts of fire incidents.

Why is Campus Fire Safety Month important?

Statistics from the National Fire Protection Association indicate that from 2011-2015, U.S. fire departments responded to an estimated annual average of 4,100 structure fires in dormitories, fraternities, sororities, and other related properties. These fires caused an average of 35 injuries and \$14 million in property damage.* Campus Fire Safety Day provides students, faculty, and staff the opportunity to engage with EH&S and local firefighters to learn what they can do in the event of a fire.

*National Fire Protection Association:
[Safety in Living and Entertainment Spaces](#)



Images used in this article were taken prior to March 2020

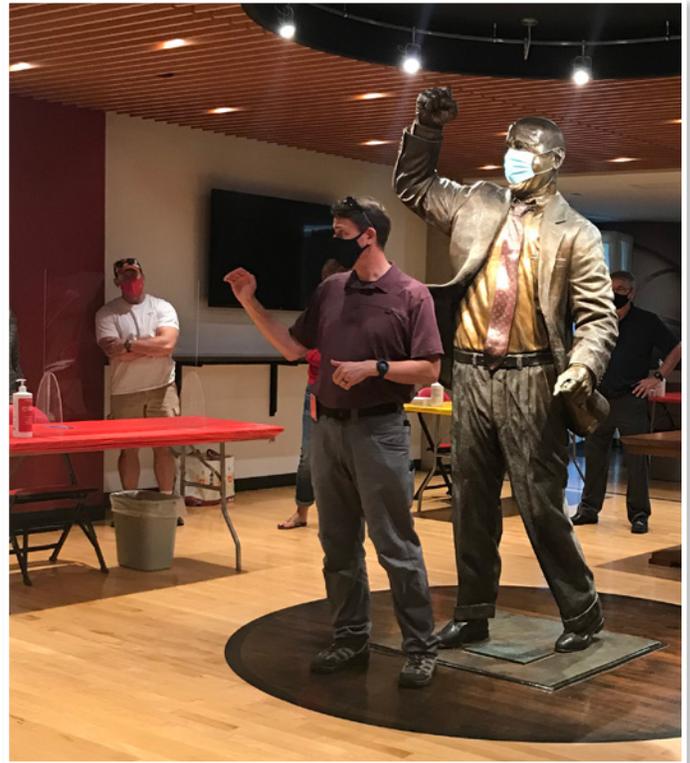
All Hands on Deck

From the first coordination meeting on January 27, 2020, EH&S was ready. As COVID-19 made its way to Iowa State University, EH&S hit the ground running to continue our strategic emphasis of ensuring a prepared campus.

On March 5, 2020, the ISU Emergency Operations Center (EOC) was activated. EH&S staff were in the forefront of the operation and served in primary roles on the EOC operational team. EH&S stepped up early with enhanced signage reinforcing good hygiene habits that was shared across campus. As EOC operations ramped up, several working groups featured EH&S members serving in prominent roles. EH&S staff took roles throughout ISU's incident management structure.

As the need for a consistent message for cloth face coverings became apparent, EH&S again rose to the occasion. A group of EH&S safety professionals collaborated and created the [Cloth Face Covering Video](#) that was used in early campus COVID messaging. Additionally, EH&S collaborated with campus partners to develop guidelines for cleaning and disinfecting campus facilities.

As spring continued, EH&S was involved in the process of developing safety guidelines for bringing employees back to campus in early June. The EOC team



& Communications staff collaborated with University Human Resources to create the Return to Campus COVID-19 training that was available through LEARN@ISU for all employees.

As research laboratories prepared for summer and fall, EH&S developed several guidance documents and made on-site visits to assist researchers and laboratory managers with safe operational procedures.

Our Emergency Management staff played key roles on the Executive Committee on Fall Planning, which was responsible for getting everyone back to campus safely. Several EH&S staff contributed to the Cyclones Care initiative, which developed a consistent media campaign used not only on campus, but also by the city of Ames.



IOWA STATE UNIVERSITY
Environmental Health and Safety

worked on the "Guide for Returning to the Workplace", a document outlining safety protocols for transitioning people back to campus. Additionally, our Training



Ready to Respond

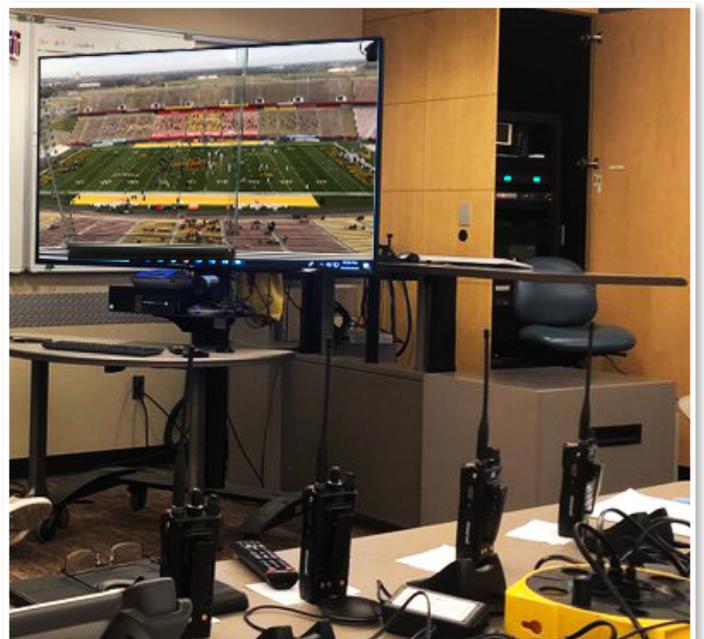
When a campus-wide power outage happened in July, the ISU Emergency Operations Center (EOC) opened and coordinated operations to ensure the safety of all faculty, students, and staff who were on campus.

During the football season, the EOC was operational for seven home football games. EOC staff monitored weather, parking lots, traffic flow, and stadium activities and coordinated with our state and county partners to ensure the safety of over 60,000 people attending Cyclone football games. The centralized command post allows for focused communication and coordination of resources in the event of an emergency or weather event during a game.



In March, the EOC was formally activated for the COVID-19 pandemic. With information changing by the minute, having the EOC operational provided the university a centralized command structure to help keep up with the rapidly-evolving incident. The EOC managed multiple tasks while leveraging experts and decision-makers on campus to quickly and efficiently make decisions and share them with stakeholders. As the pandemic continues today, the EOC continues to operate.

Central coordination, situational awareness, and information sharing among ISU's public safety partners are vital to ensuring safe and successful campus events. Safety without borders is part of our mission at EH&S and an EOC is just another way we can achieve our goal of getting everyone home safely.





EH&S FY2020

JUST THE FACTS



Everyone
Home
Safely

JUST THE FACTS FY20

ENVIRONMENTAL PROGRAMS

CHEMICAL WASTE

- 126** Radioactive Waste Packages Processed
- 601** Gallons of Used Oil Recycled
- 1,141** Trips to Retrieve Waste from Campus
- 3,374** Hours to Retrieve Waste from Campus
- 4,270** PCB Ballasts Shipped (lbs)
- 6,633** Non-PCB Ballasts Shipped (lbs)

3 YEAR - CHEMICAL CONTAINERS PROCESSED

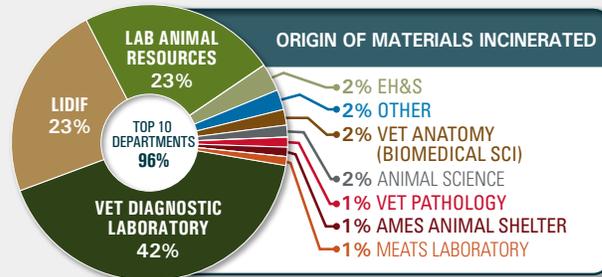
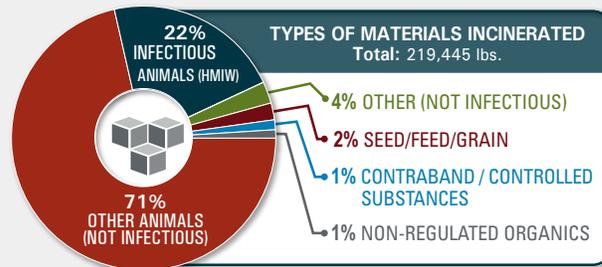


OTHER REGULATED WASTE

- 11,480** Incinerator Ash Landfilled (lbs)
- 23,078** Fluorescent Lamps Recycled

INCINERATED WASTE

3 YEAR - INCINERATED WASTE (LBS)



EMERGENCY MANAGEMENT

- 1** EOC Activation for a Power Outage
- 4** Tabletop Disaster Exercises

- 7** EOC Activation for Home Football Games
- 155** Days of EOC Activation for COVID-19
For CY20 - 339 days active (Still currently active)

FIRE SAFETY

AEDS

- 3** Emergency Repairs*
 - 75** Service Calls
 - 110** Annual Inspections
 - 198** Semi-annual Inspections
 - 1,112** Monthly Inspections
- * All emergency repairs completed within two business days

FIRE EXTINGUISHERS

- 73** Emergency Repairs*
 - 560** 12-year Hydrostatic Tests
 - 563** Six-year Maintenance
 - 5,918** Annual Inspections
 - 34,442** Monthly Inspections
- * All emergency repairs completed within two business days

JUST THE FACTS FY20

OCCUPATIONAL HEALTH

8	Ergonomic Evaluations Completed
21	Indoor Air Quality / Mold Investigations Completed
124	Personal Exposure Monitoring Samples Collected
170	Immunizations Administered by Occupational Medicine Office
251	Respirator Fit Tests
775	Medical Tests Completed at Occupational Medicine
822	Exposure Hazard Assessments
1,900	Active Participants in Occupational Medicine Program

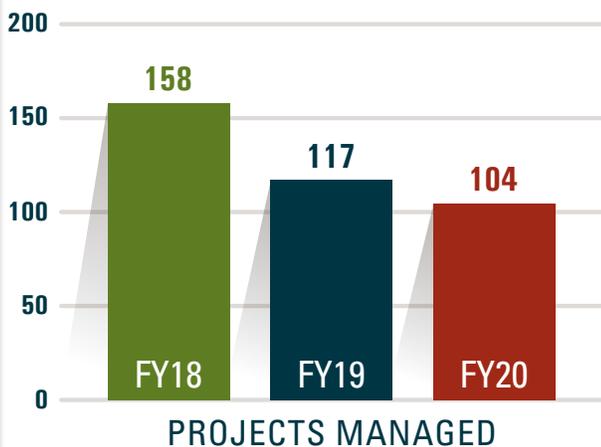
OCCUPATIONAL SAFETY

5	Buildings Modified for Fall Protection Improvements	
8	Farm Safety Inspections	36 Deficiencies Corrected
9	Operations and Finance Facility Safety Walks	41 Deficiencies Corrected
41	Shop Safety Inspections	140 Deficiencies Corrected
52	Monthly and Quarterly incident reports provided to EH&S safety partners.	
75	CoE Teaching Lab Safety Inspections	
134	Confined Space Meters Calibrations	
544	Total Reported Injuries	
487	Accident / Incident Investigations	90% Reported employee incidents investigated
366	Corrective Actions Identified	75% Investigations resulted in a documented corrective action

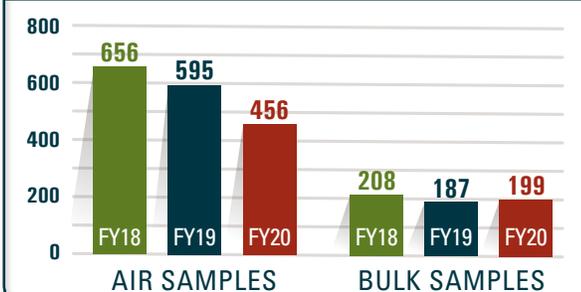
ASBESTOS & LEAD

\$1,130,524 In Managed Projects

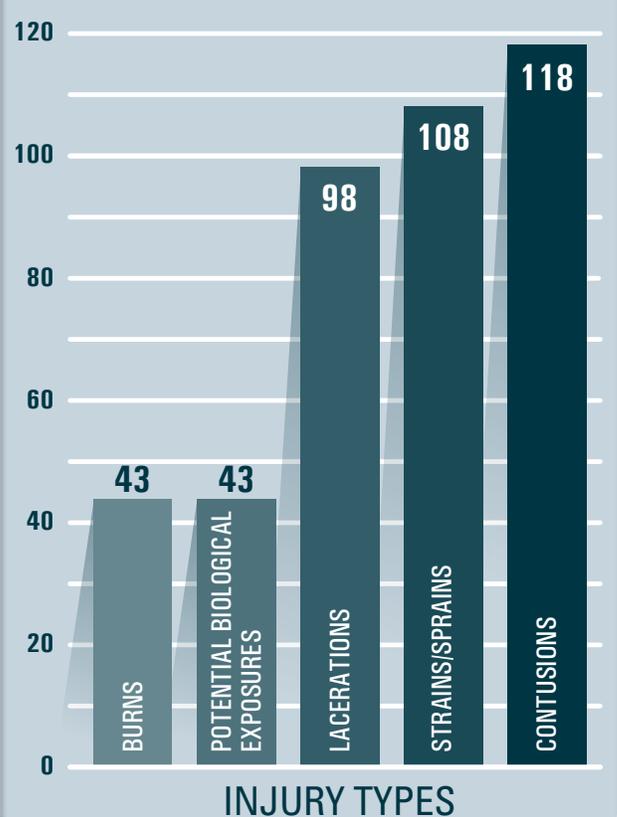
3 YEAR - PROJECT NUMBERS



3 YEAR - SAMPLE NUMBERS



TOP 5 EMPLOYEE INJURY TYPES



JUST THE FACTS FY20

RADIATION SAFETY

- 56** X-ray Systems in Use
- 65** Laser Systems in Use
- 133** Radioactive Material Packages Tested, Inventoried, and Delivered
- 173** Laboratories Approved for Radioactive Material
- 362** Radiation Safety Inspections / **31** Deficiencies Corrected
- 1,592** Personal Dosimeters Issued and Analyzed
- 2,075** Pounds of RAM Waste Collected
- 2,087** Radiation Contamination Samples Collected and Analyzed

LABORATORY SAFETY

- 322** Lab Safety Surveys / **445** Deficiencies Corrected
- 606** Fume Hood Certifications
- 747** Lab Equipment Disposals

BIOSAFETY

- 65** Autoclave Tests
- 70** Tax-Free Ethanol Approvals
- 143** Biosafety Lab Inspections / **184** Deficiencies Corrected
- 243** Biosafety Cabinet Certifications
- 418** IACUC Protocol Reviews
- 452** IBC Protocol Reviews

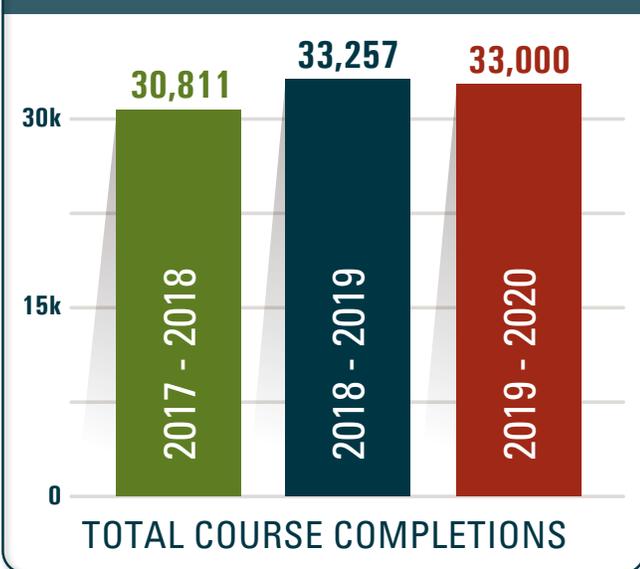
TRAINING & COMMUNICATION

- 131,057** Twitter Impressions
- 365,035** Webpages Visited

SAFETY TRAINING COURSES

AVAILABLE	COMPLETED
21 Classroom	1,343 Classroom
65 Online	31,957 Online
12 Hybrid	276 Hybrid

3 YEAR - COURSE COMPLETIONS



3 YEAR - HAZARDOUS MATERIALS PACKAGES SHIPPED

