We hope you find the Environmental Health and Safety (EH&S) FY2018 Annual Report helpful and informative. EH&S prides itself as an engaged, supportive service department, staffed by knowledgeable safety professionals who are committed to EH&S’ mission of preventing illness and injury, protecting the environment, and connecting the university to the message of safety, health, and preparedness.

We ask that you take a few minutes to read about some of our highlighted achievements, activities, and daily support functions our staff performs for you, the Iowa State community.

As always, please contact us if you have questions about this report, have a health or safety concern, or would like to offer input on how we are meeting your health, safety, and environmental needs.

- Paul Richmond
Our Mission
Prevent illness and injury, protect the environment, and connect the university to the message of safety and preparedness.

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In the spring of 2018, the planned move of 29 principal investigators (PIs) from the departments of Plant Pathology, Entomology, and Genetics, Development, and Cell Biology (GDCB) into the new Advanced Teaching and Research Building (ATRB) created new challenges for researchers who need to maintain containment in their labs for their USDA-permitted research materials.

This was the first time researchers possessing a multitude (over 33) of USDA Plant Protection Quarantine and Biotechnology Regulatory Services permits moved into a research space with an open floor plan, and also combined a variety of permitted materials, including insects, microorganisms, and genetically modified materials, into common (open) laboratory space.

EH&S helped navigate the challenges of containment for USDA-permitted materials in open laboratories by serving as a liaison between the ISU departments, local, and regional USDA staff, and Facilities Planning and Management (FP&M) to ensure all of the USDA's containment concerns were addressed. Next, EH&S staff helped guide ISU researchers through the process of transferring their permits to the ATRB and ensured that their research operations were successfully moved to the new facility.
Reducing flow to increase savings

Each year, EH&S certifies over 1,200 chemical fume hoods in buildings across campus. Fume hoods that meet set safety parameters receive certification while those that do not are turned into FP&M to receive service. Last year, in a collaborative effort with FP&M, EH&S embarked on a program to go beyond certification, essentially re-commissioning fume hoods that while operating safely were set at excessive flow rates.

In 2017, EH&S concluded a High Velocity Project that reduced the airflow and energy consumption of 1/3rd (427) of all fume hoods on campus. The project focused on maintaining a safe operational level but at a much lower airflow rate. This resulted in a total energy savings of $450 per fume hood, potentially amounting to $192,150 in annual energy savings for ISU.

Not a wasted opportunity...

The U.S. Environmental Protection Agency (EPA) published the most significant regulatory changes in decades to the Resource Conservation and Recovery Act. Several of these changes directly affected the management of hazardous waste at ISU, and in particular, within approximately 1,800 laboratories on main campus. To minimize the impact on campus clients, EH&S formally commented on the proposed rules and then engaged directly with our EPA contacts in Kansas City to clarify intent. Following that, EH&S formed a campus focus group comprised of various researchers to evaluate best options for ISU.

The outcome? Bright orange posters and waste description tags replaced lime green signage rendered obsolete by the new regulations. Further, updates were made to the online waste removal request form; tools were added that gave users the ability to print their own tags and track the status of their request. Changes were made to written materials, online training, and website resources. Through all these changes, EH&S continued to provide timely service to campus customers, with an average response time of three and a half working days between request and pick-up.
As national attention continues to be placed upon preparedness for a variety of emerging issues ranging from large sporting events, demonstrations, or active shooter situations. EH&S’s Emergency Management group has improved ISU’s preparedness for emergency situations.

In the past year, EH&S partnered with ISU Police to develop emergency planning exercises and then “exercise” them with a variety of campus clients. Eight table top exercises (simulated emergencies) were developed and provided on subjects ranging from campus flooding to violent campus demonstrations. Further, a full scale exercise involving emergency extraction from a confined space in ISU’s Power Plant was planned and carried out with involvement of ISU Police, three shifts of the Ames Fire Department, Power Plant staff, and EH&S.

Completing exercises allows for “risk-free” lessons learned. Putting those lessons learned into action will save lives and ensure that ISU is better prepared in the event of these types of emergencies.
5 are alive
Most people just say AED. Those three letters have helped save 5 lives at ISU since 2006, including one this past year. As AEDs have become almost universally accepted as standard equipment in public facilities, the number and placement of AEDs across campus has greatly expanded. There are currently 156 AEDs in 114 ISU facilities.

But AEDs are only effective if they are maintained. Maintenance includes battery inspections, pad replacements, cabinet alarm inspections, and equipment replacement as it nears its end of service life. EH&S assists with AED placement, provides training, monthly inspections, pad replacements, and tracks each unit’s service life.

Emergencies are only ½ the story
An emergency operations center (EOC) is certainly an important part of a well-organized response to an emergency. But what if there is no emergency? Having a dedicated EOC staffed during large events in case of an emergency is a key part of the planning process to ensure appropriate resources are readily available.

With the assistance of ISU Police, the location of the primary EOC was moved to the Environmental Health and Safety Services Building. Further, new equipment was acquired to outfit the EOC and communications capabilities were enhanced. The new EOC was put to use throughout the past ISU football season, as well as during the campus power outage event and the spring flooding threat.

Representatives from Story County Emergency Management, Ames Fire and Police, National Weather Service, 71st Civil Support Teams, and various campus units have all had an opportunity to observe and/or participate in EOC operations.

As the scout motto says….be prepared.

Cory Martin from National Weather Service giving a briefing on anticipated weather during a game.
A horse and a home

In 2017, EH&S developed a risk formula allowing for the risk-ranking of fire safety deficiencies and established a priority list to be corrected as funding became available.

Due to focused fire safety efforts and financial support from the Maintenance Improvement Committee, the top 11 fire safety deficiencies have been corrected as well as another 11 other deficiencies on the list.

Several fire safety deficiencies were identified in the ISU Horse Barn. Thanks to the cooperation of Animal Science, Facilities Planning and Management, and EH&S, significant life safety improvements were made. The results are a safer apartment for the animal caretakers, improved lighting in the horse barns, and more electrical capacity to run fans. How cool is that!
Each year, EH&S staff inspect shops, laboratories, and all general fund facilities to identify safety hazards as well as fire code deficiencies. Sounds simple enough right? Consider this—there are over 100 central campus buildings which must be inspected for fire code compliance; over 75 shops and 1,800 laboratories under the direction of 570 principal investigators. Last year, that added up to about 700 inspections that identified 4,306 hazards. Of those identified, 3,829 or 89% had corrective actions completed. Thanks to everyone’s cooperation, ISU became incrementally safer.

Inspect and you shall find

EH&S expanded its focus on incident investigations and injury prevention. A 55% increase in accident/injury investigations allowed EH&S to gather additional data, which is being used to identify corrective actions to prevent re-occurrence of injuries and improve work practices.

Investigating for the future
Radiological Emergency Response Team APP

Safety without Borders
Annual Report 2017-2018

Valued Connections | Prepared Campus | Health Matters | Safety without Borders | Just the Facts

A team of nuclear proportion

With financial support from the Iowa Department of Homeland Security, EH&S maintains a radiological emergency response team trained to assist in events involving radioactive material releases from Iowa’s nuclear power plants and/or transportation-related incidents.

This team maintains readiness through education, training, and multiple annual exercises that evaluate their skills and readiness. This past year, the ISU response team began integrating a new app into their procedures which allows real time mapping of radiation readings collected by the field teams during a radiological emergency.
Georgia on our Mind

EH&S participated in an outreach program to provide health and safety education and training to the country of Georgia’s major industries, academia, and government as part of a grant from the U.S. Millennium Challenge Corporation and Georgian Railway. The grant was administered through Georgian Technical University and the ISU Department of Agricultural and Biosystems Engineering. Over a two week period, safety topics ranging from asbestos to x-ray were discussed with attendees as they work to develop new regulations and programs that are already well established in the United States.

While the country of Georgia speaks Georgian, we have found that safety, and the concepts of working safely is a universal language.

NIST-MEP--What is it

NIST MEP Website

The National Institute for Standards and Technology (NIST) has an outreach program called the Manufacturing Extension Partnership (MEP) which is a public-private partnership dedicated to serving small and medium-sized manufacturers. EH&S played a small (but measurable) role in this program by providing safety, health, and environmental assistance to 13 Iowa manufacturers with the financial support of CIRAS.
Iowa State University has many beautiful, historic buildings across campus. However, some of the materials used in the past are no longer acceptable today - they must be managed properly to minimize hazardous exposures.

158 projects managed
208 bulk samples collected and analyzed
656 air samples collected and analyzed
1,079,929 dollars in managed projects

Asbestos and Lead

Iowa State University has over 1,800 research laboratories across campus. The laboratory safety program provides users with health and safety information to help prevent illness and injury while protecting the environment.

80 tax free ethanol application approvals
595 principal investigator research space inspections
762 laboratory equipment disposal inspections
1,271 chemical fume hoods certified

Our Mission
Vision
A safe and sustainable campus, community and world.

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

We will...
Deliver effective education
Foster beneficial partnerships
Maintain technical expertise
Provide exemplary service

Laboratory Safety

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Strategic Plan

Environmental Health and Safety Strategic Plan FY 2017-2022

Environmental Health and Safety

Everyone Home Safely

Safety without Borders

Value Connections

Measure Success

Prepared Campus

Health Matters

Agenda

Safety

Mission

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Emergency Management

Iowa State University has placed an emphasis on emergency preparedness as it continues to focus on essential university operations necessary to protect students, faculty, staff, and visitors during a variety of large scale events and emergency scenarios.

**Member** of Story County Local Emergency Planning Committee

**New** Emergency Operation Center (EOC) established and outfitted

- **6** football games with the EOC operational
- **8** emergency preparedness exercises created and administered
- **156** AEDs across the university
- **1,858** Emergency Response Guide Video training module completions
- **4,505** safety signs installed and inspected

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Diversity and Inclusion

EH&S supports the diversity and inclusion efforts on campus through departmental awareness activities as well as individual employee participation in various campus groups.

- Be a RESPONDer (suicide prevention) presentation
- Campus Climate Committee
- DPS Engagement and Inclusion Officer presentation
- Green Dot Bystander training
- EH&S heritage potluck
- ISCORE attendance
- University Committee on Women
- United Way

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Biological Safety

Biological safety staff work to minimize exposures to biohazardous materials and prevent their release and potential harm to humans, plants, animals, or the environment.

- **41** USDA permits coordinated
- **137** Institutional Biosafety Committee (IBC) protocols reviewed
- **254** biosafety cabinet certifications completed
- **596** Institutional Animal Care and Use Committee (IACUC) protocols reviewed
- **1,206** hazardous material packages shipped
- **3,350** pounds of medical waste collected

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Emergency Response Guide Video Module Completions

Hazardous Material Shipments

Biosafety Cabinet Certifications

United Way

Be Heard.

Take the Campus Climate Survey. It's everyone's responsibility.

What's Your Green Dot?
Environmental Programs

From hazardous waste to air quality to stormwater runoff, there are programs in place to protect our environment and reduce ISU’s environmental impact.

- 12 non-domestic waste water sewer samples collected
- 111 hazardous air emission units reviewed
- 268 storm water inspections completed
- 1,450 gallons of used oil recycled
- 2,107 trips on campus to retrieve hazardous waste
- 5,522 lbs of contraband incinerated
- 11,055 lbs of ballasts collected and disposed
- 12,212 containers of hazardous waste collected and disposed
- 38,103 fluorescent bulbs recycled
- 301,596 lbs of pathological waste incinerated

Fire Safety

Fires can play a significant role in loss of life, damage to buildings and building contents, and are one of the greatest risks we face on campus.

- 103 buildings inspected for life safety code compliance
- 798 fire safety deficiencies identified, 66% corrected
- 5,824 Fire Safety and Extinguisher training modules completed
- 39,942 fire extinguisher inspections
- 578,000 dollars allocated for fire safety improvements (some are ongoing)

Occupational Health

EH&S coordinates employee participation in the Occupational Medicine Program. This is accomplished through a hazard assessment process that includes site visits, exposure monitoring, and training as well as consultation with the medical staff of Occupational Medicine Clinic.

- 15 ergonomic evaluations completed
- 26 indoor air quality investigations completed
- 172 immunizations administered by Occupational Medicine Clinic
- 243 personal exposure monitoring samples collected (formaldehyde, noise, silica, respirable dust, other)
- 1,313 hazard assessments completed
- 1,450 medical tests completed
- 1,832 active participants in occupational medicine program
Radiation Safety

Routine radiation safety services include laboratory audits, contamination surveys, radioactive material package deliveries, and Geiger meter calibration and maintenance. Radiation safety staff made over 490 lab visits last year. When it comes to total radioactivity used at ISU, veterinary doctors practicing nuclear medicine at the Lloyd Veterinary Medical Center account for 96% of the campus total; the other 4% is used by scientific researchers.

- 42 x-ray systems in use
- 87 laser systems in use
- 159 radioactive material packages tested, inventoried, and delivered
- 198 laboratories that use radioactive material
- 490 radiation safety inspections completed
- 1,484 personal dosimeters issued and analyzed
- 4,600 radiation contamination samples collected and analyzed

Safety

Preventing illness and injury is a key part of EH&S’s mission. The safety program is focused on addressing workplace hazards with the shared goal of ensuring everyone returns home safely.

- 9 buildings modified for improved fall protection
- 15 farm safety inspections completed
- 76 shop inspections completed
- 117 confined space meter calibrations
- 284 roof safety inspections on 28 buildings
- 383 accident investigations

Training and Communications

From training to Twitter, communicating the message of health, safety, and environmental protection has no boundaries on campus. Using various media platforms allows EH&S to reach all corners of campus.

- 76 safety training courses available
- 108 safety publications available
- 31,633 safety courses completed (online and classroom)
- 108,400 Twitter impressions
- 735,886 web page visits

Completed Safety Training