



Yale *Environmental Health & Safety*

STRATEGIC PLAN

FY24

135 COLLEGE STREET, SUITE 100
NEW HAVEN, CT 06510
203-785-3550
EHS.YALE.EDU
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Executive Summary

Yale Environmental Health and Safety (EHS) held a strategic planning session on January 20, 2023, to review past successes, areas of concern, and to outline immediate and long-term plans and needs. This meeting was continued on January 31, 2023, to complete the presentations and discussion. The meetings confirmed that EHS remains a vibrant resource for the university to support Yale's mission by protecting and preserving its most valuable resource, the personnel that work to maintain the continued excellence Yale strives to preserve. Additionally, EHS programs help ensure that Yale remains in conformity with applicable regulations, standards, and guidelines and promote best practices in settings not associated with regulatory oversight.

Overview

This report highlights the top accomplishments, concerns, goals, and strategic needs for all EHS sections. It is also intended to provide our blueprint for helping to maintain Yale University's safety, conformity with all regulations, and to support Yale's mission of "improving the world today and for future generations through outstanding research and scholarship, education, preservation, and practice." Our accomplishments remain in alignment with our own mission of "reducing injuries, accidents and environmental impact and ensuring compliance, by providing high-quality training, comprehensive workplace evaluation, emergency response, hazardous materials management from acquisition to disposal and by managing regulatory information."

In addition to the individual section reports, we also held three distinct retreats for some of our biggest groups to attempt to identify best practices to retain and build upon as well as activities that merit review, change or that need to be addressed. These retreats were also an opportunity to reflect on where we have been, where we are, and where we need to be going. We used this time to check in on the status of the health and resilience of our staff, many of whom were working diligently during the pandemic alongside various other support groups to help sustain the university's activities and to help ensure that they were conducted as safely as possible. These retreats were held for the Environmental Affairs Section, the Safety Advisor Program, and our Administrative Group. Our Radiation Safety leaders held a private retreat to take a deep dive into all the regulatory requirements for their program at Yale and mapped out how to ensure that each requirement continues to be covered. Retreats for the other EHS sections will be scheduled in the near future.

It was another phenomenal year and while this report accounts for major achievements of our section, our goals, and needs, it cannot reflect the strength of the relationships that EHS has and strives for with each department, laboratory, staff members, students, and any other client of EHS at Yale. These individual relationships are what collectively define our program, help us identify our roadmap for continuous improvement, and fuel our mission to help protect the environment, health, and safety for all our employees, our resources, and the community.

TOP ACCOMPLISHMENTS FY23**BIOLOGICAL SAFETY**

- Reviewed 240 IBC protocols, completed all biosafety inspections (903 PIs).
- Automated committee approval letters, amended online bio registrations, and coordinated the automation of data collection for new State of CT Department of Public Health online registration process.
- Updated Human Gene Transfer Subcommittee leadership and membership to help prepare for growth of clinical trials involving regulated biological materials.
- Completed significant IT upgrades to biosafety registrations and committee work (with EHS/ITS) including automating rDNA and Infectious Agent submission and approval notices.
- Performed validation of campus BSL-3 research facilities to support commissioning, renovation, and ongoing federal requirements.
- Assisted with MPOX pandemic response effort with development of cleaning and disinfection standard operating procedures for campus.

BUSINESS OPERATIONS

- Development of plans to address work locations for new EHS staff members and/or new EHS staff locations (135 College Street and 60 Temple Street).
- Cross-trained administrative staff as program back-ups to ensure continuity of critical EHS programs.
- Transitioned Yale Biological Safety Committee documentation processes to online registrations and electronic approval letters.
- Automated processes for the Department of Public Health Registration program and the Yale Biological Safety Committee. This has saved critical time for administrative personnel associated with the biosafety program.
- Enhanced EHS's role in the SciQuest approval process.

TOP ACCOMPLISHMENTS FY23**ENVIRONMENTAL AFFAIRS**

- Helped prepare for and successfully pass an inspection by the CT DEEP at Yale West Campus for RCRA.
- Lead CT DEEP inspections at multiple federally regulated UST locations on campus.
- Lead CT DEEP inspections at Yale's two largest power plants (Sterling and Central Power Plants).
- Planned for six new EAS hazardous waste facility projects, which are currently under construction.
- Maintained the YSM autoclave/shredder unit, which is 15 years past its life expectancy date. This unit provides considerable time/cost savings for YSM researchers.
- Promotions for former EAS staff within Yale EHS and inclusion of former New Haven Promise interns into full-time positions at EAS are notable staffing successes.

OCCUPATIONAL HEALTH & SAFETY

- The Laboratory Safety Committee drafted and implemented the Working Alone Policy, which had significant layers of approval.
- Restructured respiratory protection training fit testing (1,500 people first half online, 1,038 fit tested, 126 PAPR, combo 326).
- Conducted extensive isoflurane monitoring to better categorize exposures and recognize variables that lead to higher exposures.
- Created a mobile elevated work platform (e.g., boom and scissor lifts) program based on 2020 ANSI standard & a Facilities electrical safety program based on NFPA 70E.
- Guided physical safety upgrades for student shops, lighting, tool and equipment guarding, as well as tool controls.
- Performed monthly toolbox talks with Central Campus, West Campus, and YSM Facilities trades staff.
- Completed 20 percent of the high-priority roofs (7 of 33 roofs) for fall protection.
- Strategic communications to improve operations and minimize incidents with Hospitality.
- Increased ergonomic assessments for labs, offices, and work environments that ensure working safely.

TOP ACCOMPLISHMENTS FY23

RADIATION SAFETY

- Worked with the Office of Radiological Security to perform physical security upgrades to one of Yale’s high-risk facilities (total savings to Yale ~\$700-800K).
- Transitioned to a new occupational dosimetry program vendor, which required a significant level of training.
- Advanced the medical x-ray program to ensure that required duties and responsibilities were known at Yale Medicine clinics.
- Updated emergency response protocols after PET Center event and identified critical lack of key back-up personnel among PET Center staff.
- Improved Safety Advisor radiation safety documentation to address NRC requirements for inspections and provided best practice examples for relevant EHS staff.
- Revised PET Center CT operating scanning credentials for operating critical equipment.

RESEARCH SAFETY

- Transitioned a new vendor to service and certify approximately 2,500 researcher Clean Air Devices on campus, a critical engineering control for sterility and operator safety.
- Coordinated 1,768 research material reviews, 132 plasmid/vector reviews, 63 hazmat shipments, and evaluated 45 shipping policy exceptions. Processed 11,342 research material shipments through Yale’s shipping tool, eShipGlobal.
- Assisted principal investigators with the registration and compliance of 250 controlled substances licenses, processed 77 drug destructions, processed 11 new registrations, and closed out 15 licenses.

TOP ACCOMPLISHMENTS FY23**SAFETY ADVISOR PROGRAM**

- Developed and launched a new focused training curriculum to ensure competency certification of all new Safety Advisors within their first 12 weeks of hire.
- Continued campus assistance with COVID-19 control needs by deploying aerosol extraction devices in clinics for COVID-19 testing, validating a UV light box for inactivation, and presenting on engineering controls implemented by EHS at the annual Association for Biosafety and Security (ABSA International) Conference.
- Assisted faculty with their preparation for inspections by the CDC, State DPH, USDA, AAALAC with no significant findings noted on any regulatory visits.
- Safety Advisors also participated in writing two publications accepted for publication in the *Applied Biosafety Journal* (one published in 2022, the other scheduled in the Spring of 2023).
- Deployed Aerosol Extraction Devices in clinics for COVID-19 testing.
- Validated a UV light box for inactivation of SARS-CoV-2.
- Staff presented at the annual ABSA conference on how Yale EHS implements engineering controls.

TECHNOLOGY & OUTREACH

- Instructional Design made significant advancements in the respiratory protection program training, helped launch a Lab Safety Refresher training, and developed EHS Integrator help videos for controlled substance inventories.
- Developed new EHS Integrator features and reports including significant enhancements to the controlled substance inventory, Working Alone Protocol registration, and department metrics Power BI dashboard. Made progress on a proof of concept for converting EHS Integrator features to cloud computing.
- Prepared numerous communications for campus COVID-19 public health intervention, including frequent updates on required precautions, returning to work safely, travel practices, mask guidance, occupancy requirements and limits, vehicle use and hosting events.
- Coordinated and implemented the Diversity, Equity, Inclusion, and Belonging Committee and program.

STRATEGIC GOALS FY24 - EHS OFFICE WIDE

1. Finalize Principal Investigator Questionnaire (for Project Management & Construction planning and onboarding new PIs) and work with IT support to implement in EHS Integrator.
2. Conduct an emergency drill (biological, radiological, or chemical) to evaluate emergency response readiness and build partnerships with key response partners.
3. Work with leaders in administration (Dean's, Provost's Offices) to develop a notification system to EHS to identify new research and clinical principal investigators coming from within and outside Yale.
4. Assess EHS Integrator registration processes to ensure they are as efficient as possible for end users and clear regarding information needed.
5. Develop data analytics and reporting via Power BI dashboards for EHS staff, PIs, chairs, committees, etc.
6. Adoption of SmartSheets for project tracking.

STRATEGIC GOALS FY24 - BIOLOGICAL SAFETY**GOALS**

1. Achieve full conformity with OSHA regulations, notably the Bloodborne Pathogens Standard, ensuring that general duty information is provided to each employee facing a hazard, ensuring that BBP training is completed before initiation of work, with the offer of the HBV vaccine or declination within 10 days of work, and completing annual training within 365 days.
2. Create and implement a marketing campaign directed at PIs, lab managers, and managers of non-lab staff notifying and reminding them of their job responsibilities.
3. Evaluate growth in Yale Medicine's clinical enterprise, including clinical trials, and plan for increased capacity in Clinic EHS programs.

PLANS TO ADDRESS

1. Increase capacity for Clinic EHS programs.
 - a. Build back-up(s) for the EHS Clinic Safety Advisor.
 - b. Assign clinic regulatory responsibility (CAP/CLIA) to clinic safety advisor.
 - c. Activate use of external IBCs through Linda Coleman (plan in place awaiting need), but identify potential funding through the Provost's Office.
2. Identify existing EHS staff for long-term individual development plans (IDPs) and building EHS capacity.
 - a. Provide opportunities for existing staff for significant involvement in programs and for knowledge transfer.
 - b. Work with Yale HR to develop transition plans tied to IDPs and campus growth.
 - c. Promote staff in conjunction with new entry level positions.
3. Develop plans to address protocol growth and new regulations (OSHA Infectious Diseases Standard, ASHRAE Mold Standard, etc.)
 - a. Identify which existing programs cover aspects of new rules.
 - b. Assign leads among existing biosafety personnel (and interested SAs).
 - c. Develop EHS growth plans with documentation of projected workloads.
 - d. Determine impact with partners to create projection reports and impact across campus.
4. Purchase the Evergreen Telemetry differential pressure monitoring system (17K) to assist with BSL-3 facility validations.
5. Targeted immersive training for existing staff to support their development in their assigned areas or those assisting in.
6. Funding support for IT assistance in addressing OSHA compliance concerns.
7. Identification of funding source for external IBCs if need arises.
8. Provide conference travel funding for certified staff, those seeking certifications to help them build their knowledge base, create their own "new" networks and pipelines for further information (an investment in EHS's future).

STRATEGIC GOALS FY24 - BUSINESS OPERATIONS

GOALS

- 1. Provide cross-training to Business Operations staff to ensure critical programs coverage.
- 2. Evaluate ways to reduce paper files and redundant, inefficient business processes.
- 3. Develop SOPs to capture all business operations processes.

PLANS TO ADDRESS

- 1. Create additional EHS Integrator modules for staff to use iPads to conduct field work.
- 2. Explore summer interns or student help.
- 3. Move additional paper processes online.
- 4. Work towards formulating and completing current and future office renovations so we can have additional space for growth, quiet spaces, and collaboration areas.
- 5. Implement new workflows to see if tasks can be completed more efficiently.
- 6. Continue to maintain adequate levels of ASTM masks and N95 respirators.
- 7. Continue new staff training and onboarding.
- 8. Completing renovations so we have enough space for EHS staff.

STRATEGIC GOALS FY24 - ENVIRONMENTAL AFFAIRS**GOALS**

1. Develop a plan to achieve interdisciplinary capacity and resilience within EAS.
 - a. Create mentorship and cross-training opportunities for key positions (e.g., Power Plant EHS Officer, RCRA Compliance Officer, Environmental Affairs Officer, Hazardous Materials Officer, and Refrigerant Specialist).
2. Develop a ladder structure for EAS to provide professional growth opportunities within the section.
3. Develop a university-wide water quality testing strategy/program.

PLANS TO ADDRESS

1. Address staffing and retention concerns.
2. Work with Project Management to develop realistic and tighter project schedules.
 - a. Realistic goals for the technicians, empowering the techs to take control of these projects and being able to answer questions, or reach out to other senior techs.
 - b. Having contingencies in place when there is a breakdown in service delivery.
 - i. Build capacity and resilience into EAS programs through cross-training and mentorship.
3. Planning and coordination of significant moves to minimize its disruption on staff and services.
 - a. Attempt to get to “normal operations” as soon as possible after the projects and moves.
4. Empower staff to say, “I don’t have an answer, but will get one for you.”
 - a. To assist with the disruptions in the workday from feeling that any request is an immediate need to stop work and start working on the new request.
5. Influence key campus leaders on best steps forward regarding Ingalls Rink.
6. Routinely meet with the full staff to stay up to date with their interests and needs.
7. Continue professional development opportunities for staff.

STRATEGIC GOALS FY24 - OCCUPATIONAL HEALTH & SAFETY**GOALS**

1. Implement new Chemical Safety Levels tied to lab design, engineering control requirements, emergency SOPs, and laboratory signage.
2. Develop a plan to expand chemical inventory program throughout campus.
3. Review and expand key physical safety programs. Provide required and relevant safety training for various Facilities groups after getting buy-in from managers and directors.
4. Complete a campus-wide inventory of confined spaces.
5. Develop guidelines to address electrical safety in research.

PLANS TO ADDRESS

1. Work with Yale Facilities to convert Ingalls Rink from an ammonia to CO2 refrigerant system.
2. Get buy-in from campus administrative leaders to move forward to a fully chemical-inventoried university.
3. Develop and provide training to ensure that supervisors understand their responsibilities regarding training.
4. Upgrade related equipment, keep current with training, and ensure that key resources are available for staff.
5. Identify ventilation courses for inexperienced staff to help build capacity with this critical topic in project design reviews.
6. Identify, train, and promote a safety professional within Yale Facilities.
7. Develop a required process for building project safety reviews.
8. Provide continued support and a plan for training for most at-risk groups on campus.
9. Ensure supervisor accountability for worker injuries, employee safety, and training.
10. Collaborate with Safety Advisors to improve building and other non-lab inspections.
11. Include a requirement for fall protection in building design standards.

STRATEGIC GOALS FY24 - RADIATION SAFETY

GOALS

- 1. Continue to build capacity within the program through existing staff. Cross-train and work towards developing redundancy in the skills needed for program operation.
- 2. Formalize Internal Radiation Program Annual Audit Process (annual audit of own in-house Rad Safety program)
- 3. Improve the Institutional Review Board (IRB) Ancillary Committee Review process to address the increase in RDRC/RIDC protocols.

PLANS TO ADDRESS

- 1. Perform time studies and collect team metrics to support bandwidth analysis.
- 2. Managing at Yale workshop(s) for Rad Team skills development.
- 3. TMS/EHS Training Team assistance with education conversions.
- 4. Evaluate alternative suppliers for campus Liquid Scintillation Counter contracts.
- 5. Implement Power BI Dashboards for Rad program management (team metrics).
- 6. Garner support from EHS leadership/HRPP to drive changes in RDRC/RIDC.
- 7. Invite external guest speakers for staff skills development.
- 8. Expand Rad Team leadership, with a reshuffle of program responsibilities.

STRATEGIC GOALS FY24 - RESEARCH SAFETY**GOALS**

1. Research Material Shipping
 - a. Improve plasmid and vector review process in eShipGlobal.
 - b. Work with key administrators to develop a plan to switch to the new eShipGlobal Blockchain platform.
2. Online Controlled Substance Inventory
 - a. Complete the transition for all principal investigators who have not converted over to the EHS Integrator inventory system.
 - b. Develop monitoring processes to ensure successful use of the new online Controlled Substance Inventory program.
3. Clean Air Device (CAD) Improvements
 - a. Develop EHS Integrator functionality for the CAD program.
 - b. Evaluate the potential for the CAD program to be serviced, either in part or in whole, by in-house EHS staff.
 - c. Engage Yale Procurement in developing an incentive program for sunsetting and replacing CADs that have reached their useful life.
 - d. Continue to enhance our relationship and build understanding with Yale's CAD vendor, RC Testing Inc., regarding Yale's program needs, policies, and procedures.

PLANS TO ADDRESS

1. Ensure sufficient assistance is provided for our instructional designer for addressing the update of all web-based training.
 - a. Improve training content.
2. Clean Air Device Improvements
 - a. Improve EHS Integrator functions associated with CAD.
 - b. Work towards bringing CAD fully in-house (visit sister institutions that have done this).
 - c. Create an incentive program with Yale Procurement for sunsetting aged equipment and purchasing modern devices.
3. Improved review process for the review of plasmids and vectors in eShipGlobal.

STRATEGIC GOALS FY24 - SAFETY ADVISOR PROGRAM

GOALS

- 1. Establish Safety Advisor mentorship programs to include focused direct practical training for new and existing SAs, with mentors representing all aspects of EHS.
- 2. Address stress among Safety Advisors by developing shorter checklists for required inspections with relevant senior staff leaders at EHS, evaluating the frequency of inspections, etc.
- 3. Continue to coordinate EHS Integrator improvements for the SA inspection program and work towards 100 percent iPad usage for all audits/inspections.

PLANS TO ADDRESS

- 1. Create and offer the SA Mentorship program for all members of the program.
- 2. Finalize onboarding process for any new SA Program work requests and distribute to all sections within EHS.
- 3. Continue working with Technology and Outreach on EHS Integrator improvements and updates for SA programs.
- 4. Remain committed to continuing education for Safety Advisors through monthly educational lectures and with offsite professional development courses.
 - a. Invite speakers to SA meetings to provide training on soft skills such as time management.
 - b. Send SAs to section-specific courses to help with existing or new EHS programs.
 - c. Provide additional resources, such as training handouts, FAQs, video library of tasks or on how we perform the jobs that we do.
 - d. Take advantage of Yale Learning Center management and other classes.

STRATEGIC GOALS FY24 - TECHNOLOGY & OUTREACH**GOALS**

1. Repair and rebuild instructional content for conversion to new university Learning Management Experience (LMX).
2. Continue to address the EHS Integrator development backlog, with better transparency to managers and subject matter experts.
3. Investigate solutions to track and provide metrics for EHS Integrator user support requests.

PLANS TO ADDRESS

1. Continue to make progress addressing the internal EHS Integrator development backlog, with better transparency to managers and subject matter experts.
2. Have EHS serve as an additional resource for LMX instructional content conversion.
3. Promote the use of Smartsheet to track progress and automate reminders.
4. Develop and improve dashboards in Power BI and provide training in Power BI.
5. Pursue additional EHS Integrator developers, testers, and analysts.
6. Pursue the hiring of a Graphic Design Promise intern.
7. Develop a ticket system for EHS Integrator user support requests to track metrics associated with Technology and Outreach program support.

Conclusion

Yale EHS's footprint and impact across the university remains strong. Our challenge is sustaining our excellence at a time of unprecedented campus growth. EHS also faces competition for recruiting and retaining qualified technical experts to help ensure that our staffing levels remain adequate to provide our impressive array of services at the elevated level of quality that our clients at the university have come to expect.

Growing and keeping qualified technical and administrative staff members is our biggest challenge and we will need to identify how to do more with less, how to build capacity from within, but also to develop tangible plans for EHS growth. We must simultaneously work on retention strategies for our own promising group of EHS professionals, many of whom have significant institutional knowledge, in order to maintain pace with the expansion of technology being deployed at Yale on a seemingly weekly basis. EHS must grow with Yale and strive to understand the new equipment and devices being used by our clients, ensuring that we understand the new techniques and protocols being used across campus, and that newly created jobs have a targeted safety assessment. We must also keep abreast of new environmental and other applicable regulatory changes and inspection demands.

The growth of Yale University right now is unprecedented in the over 300-year history of our institution. This growth is creating a challenge for EHS and all our partners. This Strategic Plan report and the outline of next steps and considerations will help EHS to continue to provide excellent customer service for our clients across Yale. We are proud of our many accomplishments and look forward to continuing to support Yale's mission by doing everything we can to help keep Yale safe, compliant, and efficient.

EHS Mission Statement

"The Office of Environmental Health and Safety is a resource of highly trained safety professionals who serve the Yale community. We are dedicated to reducing injuries, accidents and environmental impact and ensuring compliance. We achieve this by providing high-quality training, comprehensive workplace evaluation, emergency response, hazardous materials management from acquisition to disposal and by managing regulatory information.

Our Vision...

...is a partnership with students, faculty and staff who are aware of risks and are empowered to learn, discover, and work in a manner that protects human health and the environment."

EHS Values

INTEGRITY

- Exert leadership based on our ethical obligation to protect people and the environment
- Strive to be honest, fair and consistent
- Be prudent stewards of Yale's resources

TEAMWORK

- Foster cooperation and collaboration
- Encourage and support the professional growth of all EHS employees

SERVICE

- Serve as Yale's health and safety advisors
- Provide high quality and easy-to-use services in a timely manner
- Continuously improve our services and processes
- Implement innovative safety solutions

ATTITUDE

- Promote safety as everyone's responsibilities
- Possess and encourage a positive "can do" outlook
- Maintain a strong work ethic by keeping our word and taking responsibility for our work and actions
- Little things matter to us

DIVERSITY

- Be open to everyone's ideas and opinions
- Understand the needs and situation of others
- Treat all individuals equitably, professionally and with courtesy, dignity and respect
- Strive to make our policies, procedures and training accessible and understandable