

COLLEGE OF AGRICULTURE

Assessment Field Guide

Conducting Effective and Efficient EH&S Site Assessments

Table of Contents

Conducting an Assessment 3
 Purpose 3
 Scope 3

Roles & Responsibilities..... 3
 Customer 3
 EH&S 3

Execution Strategy for Implementing Program Assessments..... 4

Assessment Documents 4
 Using the Assessment Forms 4

Laboratory Safety Program Assessment Process..... 4
 Assessment Equipment and Supplies 6
 Management Discussion 7

Post Assessment Debriefing with Management 7

Document Tracking History 7

Appendices 8
 Q&A on Execution Strategy for Implementing Program Assessments 8
 Laboratory Safety Inspection Checklist 9
 Shop Safety Inspection Checklist 13
 Field Safety Inspection Checklist 13
 Assessment Pictures Checklist..... 13
 Self-Assessment Tool 13

Conducting an Assessment

Health, safety and environmental assessments are valuable tools in the discovery process. Findings may lead to opportunities for the lab, shop or field operation to reduce accidents and environmental incidents and find better ways to reuse or recycle materials that would otherwise, be wasted.

Purpose

The purpose of an assessment will be to gather information and describe the health, safety and environmental processes, practices and programs at the lab, shop or field operation. The assessment will lay the foundation for the learning and quality improvement effort around reducing accidents and environmental incidents at each area.

Scope

The Field Guide provides guidance to the assessment team and the customer on conducting an effective and efficient health, safety and environmental assessment.

Roles & Responsibilities

Customer

EH&S requests that the lab, shop or field operations management provide the following prior to or during the assessment:

- Communicate to staff the nature and scope of EH&S's on-site assessment
- Provide permission to take photographs of the operation as needed to highlight a good practice or an opportunity for improvement. EH&S will have a digital camera to capture necessary images.
- Provide EH&S an escort through the facility/lab, most likely the primary contact, who has a master key in case access to specific areas is necessary

EH&S

The process for completing an Assessment and Report is:

- Coordinate with the Department's Safety Coordinator to participate in the assessment, if available
- Complete the On-Site Assessment Form (See Appendices for the Assessment Forms)
- Complete the Assessment Picture Checklist (See Appendices for Assessment Picture Checklist)

Execution Strategy for Implementing Program Assessments

Under the director of the Dean, the Environmental Health and Safety Quality Office (EH&S) expects to have assessment programs, such as in labs, shops, offices and field operations in place that can stand up to the scrutiny and rigor of a third party performance audit conducted by a regulatory agency and at the same time reduce the likelihood of accidents, injuries and environmental incidents. Such assessments look at behaviors and actions, not just paperwork compliance. The College of Agriculture program assessments will focus on the human element and the physical conditions of the site. Identifying preventive actions that resolve the problem at the source vs. symptoms, e.g., unclean work areas, will achieve sustainability through a better understanding and application of the management system concepts.

In addition to the EH&S Quality Office driven programs, the Dean's Office supports and encourages ongoing self-inspections by the PIs and staff. Performing this proactive approach on an ongoing basis can enhance safety and environmental awareness and verify compliance status. (See Appendices for the Q&A on Execution Strategy)

Assessment Documents

Using the Assessment Forms

The assessment forms (Laboratory, Shop and Field) are a guide for obtaining relevant information during the onsite assessment. The documents are evergreen. If you have suggested changes that would more accurately reflect the site conditions, please forward them to John H. Gamble at 713.835.0431 or jhgamble@ksu.edu.

Laboratory Safety Program Assessment Process

Overview

The EH&S Quality Office strives to support the core laboratory research and the teaching mission of the Kansas State University, College of Agriculture. EH&S conducts a comprehensive laboratory inspection program to ensure that work within laboratories is occurring safely and in compliance with applicable laws, guidelines and University procedures. All laboratories at the College of Agriculture are inspected on a scheduled basis, including new investigators at the College.

In addition to a formal annual EH&S inspection, lab staff and/or Principal investigators (PI) shall support practices that provide for self-inspection of laboratories on a periodic basis during those months that classes are in session and/or when research is in process. This proactive approach is necessary to assure the safety of lab operations for all users. It is the responsibility of lab users to maintain a safe and healthy work environment. They are in the best position to know the hazards inherent in their work and implement appropriate controls.

Principal investigators are the key to research safety programs. PIs are responsible to train and supervise lab workers, and to ensure that the conduct of workers and research is compliant with all safety and health standards. The lab safety inspection program aids the investigator in providing education and advice.

The inspections focuses on verifying:

- All workers are aware of the risks associated with the work in the lab, including animal hazards, physical hazards, biological hazards and chemical hazards.
- All workers are trained on how to mitigate those risks, through facility design, engineering controls, safe work practices and protective equipment.
- Workers comply with regulatory requirements, such as potential exposure to bloodborne pathogens or other infectious materials, and storage, handling and disposal of hazardous chemicals.

Specifically, the lab inspection covers the following items:

- Laboratory security
- Personnel training and documentation
- Laboratory safety design
- Hygiene and personal protective equipment
- Laboratory practices
- Sharps safety
- Chemical storage, handling, and disposal
- Spill and infection control
- Biological safety cabinets, fume hoods and other containment equipment
- Biological and chemical decontamination and waste disposal
- Animal experiments

The lab inspection process begins when the lab inspector contacts the PI to schedule the inspection. It is recommended, but not required, that the PI responsible for the laboratories accompany EH&S on the inspection. If the PI is not available, the individual accompanying EH&S on the inspection should be familiar with all of the work occurring in the laboratories. To prepare for the inspection, the EH&S laboratory inspector reviews the PI's Institutional Animal Care and Use (IACUC) protocols, recombinant DNA protocols, and EH&S registration workbooks to better understand the work occurring in the lab.

EH&S utilizes a standardized laboratory inspection checklist during the inspection, which is found immediately following these guidelines. The lab inspector visits all of the labs used by the PI, including

shared laboratories, such as shared cell culture rooms. The lab inspector communicates all recommendations verbally during the inspection. Concerns that require follow-up may be handled by the lab inspector or forwarded to other qualified EH&S staff.

A written inspection report is sent to the PI and the lab contact shortly after the inspection. As necessary, copies of the reports are forwarded to the department chairperson, departmental manager and the departmental safety coordinator. The report includes a summary of the work that is occurring in the PI's labs and on the PI's research protocols. The report includes a summary of the recommendations for improved lab safety. "Critical action items" generally include items related to regulatory requirements such as biological and hazardous chemical waste disposal, safe handling of biohazards, work with animals and handling of safety equipment. "Opportunities for improvement" include other items that may not be an immediate safety concern, but warrant further examination by the PI. The report includes a completed copy of the inspection checklist.

On occasion, extremely critical safety hazards are identified on laboratory inspections. In such cases, EH&S will perform a prompt follow-up, and seek or oversee corrective action. If a condition is identified as posing a severe imminent hazard to safety or health, the operation can be suspended by EH&S and the University's administration after consultation and approval by the College of Agriculture Dean.

After the inspection, the lab inspector may return to the laboratory to verify that recommendations have been implemented and also provide additional follow-up for special projects, such as the introduction of acutely hazardous materials. If the scope of the laboratory work changes significantly as a result of new chemicals, EH&S will conduct another inspection.

Assessment Equipment and Supplies

- Name badge
- Assessment form/picture checklist
- Note pad
- Pen
- Flashlight
- Tape measure
- Safety glasses and other PPE, as needed
- Sampling equipment, as needed
- Camera (charged and/or batteries, as needed)
- Laptop with power cord, as needed

Management Discussion

The purpose of the initial meeting with the PI/staff is to:

- Introduce the assessor(s)
- Establish a customer service point of contact
- Provide them an overview of the assessment process
- Listen for the purpose of understanding the facilities issues, practices and opportunities for improvement
- Document hazardous waste generation status and management practices
- Reconfirm approval to take pictures
- Begin the process of identifying program strengths/challenges
- Discuss departmental safety goals and the current performance in meeting those goals

Post Assessment Debriefing with Management

At the completion of the inspection, and before going over your findings and opportunities for improvement with management, discuss program strengths and success stories. When you present your findings and opportunities for improvement to management be cognizant of their options and available resources to change practices or introduce new programs. Request to contribute to the departmental Safety Committee. When you meet with them, encourage them to baseline EH&S from their perspective, and revisit the process six to twelve months later after other initiatives have been launched or refined. (See Appendices for Self-Assessment Tool)

Document Tracking History

Version	Date	Description	Author	Contributor(s)
1.0	06.30.15	Original Document	JHGamble	

Appendices

Q&A on Execution Strategy for Implementing Program Assessments

What happens if we don't implement the program?

The EH&S Office cannot verify overall compliance with the stated program objectives and regulatory mandates unless a rigorous program assessment process is implemented.

What is the program scope and implementation timeline?

The EH&S Assessment Team will evaluate programs with health, safety and environmental implications throughout the College.

Who will implement the program?

The EH&S Coordinator manages this program. Departmental Safety Coordinators or their designees will participate in this program, as the need arises.

How will we implement the program?

Comprehensive assessments will be conducted of labs, shops, offices and field under the control of Departmental Managers. The assessment schedule is determined by the EH&S Coordinator in collaboration with the Departmental Safety Coordinators.

When will the products be delivered to management?

The final program assessment report will be issued within seven days after completing the document review and field verification. If the findings are not resolved by the time of the 30-day follow-up assessment, the report will be forwarded to the one up. Subsequent reporting to senior management will occur if the findings are not resolved by the 60-day follow-up inspection.

Benefits

- Assure management of "point-in-time" program compliance status
- Reinforce responsibility, accountability and program ownership
- Continually improve compliance status through training and self-assessments
- Reduce the likelihood of employee related accidents and environmental incidents
- Promote health, safety and environmental stewardship

Laboratory Safety Inspection Checklist

Building & Room(s):	Inspected By:
PI/Area Supervisor:	Date:

All laboratory spaces containing hazardous materials must be inspected at least annually by EH&S. Laboratory self-inspections should be conducted monthly. For each item check Yes, No or N/A. Be sure to retain all documentation regarding inspections, including findings **and** corrective actions taken for any "No" responses, for a minimum of 3 years. Contact EH&S at 713.835.0431 for questions or additional information.

Y	N	N/A	DOCUMENTATION & TRAINING
			1. Lab entrance signs with current contacts and emergency numbers posted?
			2. Prudent Practices in Laboratory Safety Manual accessible?
			3. Lab Safety (Chemical Hygiene) Plan accessible and up-to-date?
			4. Other required manuals (Biosafety, Radiation Safety, Laser Safety) accessible and up-to-date?
			5. Chemical inventory annual review is complete and up-to-date?
			6. New employees/students are trained on safe procedures and complete the orientation checklist?
			7. All lab personnel have completed lab safety and hazardous waste training?
			8. As needed, lab personnel have completed specialized training (BBP, BSL-2, Shipping, Laser, etc.)?
			9. Up-to-date lab specific procedures (Working Alone, SOPs, Lab Accident Protocols)?
			10. Monthly Laboratory Safety Self-Inspections are up-to-date and issues addressed?

Y	N	N/A	EMERGENCY EQUIPMENT
			11. Appropriate fire extinguisher for the hazard is present, charged, inspected and unobstructed?
			12. Eyewash is present (w/in 10 sec.), unobstructed, tested and tagged by lab month?
			13. Safety shower is present (w/in 10 sec.), unobstructed, tested and tagged by Facilities monthly?
			14. Spill kit is available and lab personnel are trained in spill clean-up procedures?

Y	N	N/A	PERSONAL PROTECTIVE EQUIPMENT (PPE)
			15. PPE (eyewear [safety glasses/goggles/face shield], gloves, lab coats) available and used in the lab?
			16. Visitor glasses readily available (if visitors permitted)?
			17. Proper chemical resistant/heat resistant/cryogenic/puncture resistant gloves?
			18. Long pants and closed shoes (no open toe or canvas shoes) worn?
			19. Appropriate rubber apron available (if concentrated acid/base use)?
			20. PPE not used in food areas, elevators, opening doors, etc.?

Y	N	N/A	GENERAL HAZARDS
			21. Corridors and exit door unobstructed?
			22. Adequate lighting for tasks?
			23. Excess trash, boxes and paper promptly removed?
			24. No eating/drinking/food storage in lab (except in designated areas)?
			25. Handwashing facility (with liquid soap) available?
			26. Proper disposal of needles and sharp objects (red for biohazards, white for non-hazardous)?
			27. Proper disposal of broken glass waste (lined cardboard box)?
			28. Lab equipment moving parts are guarded?
			29. Gas cylinders are secured away from heat sources, and capped when not in use?
			30. Empty or unused gas cylinders have been returned to the supplier or disposed of?
			31. Brittle tubing or any other equipment with evidence of cracking has been replaced?
Y	N	N/A	FIRE SAFETY
			32. The fire rating of the lab space is consistent with the Occupancy Classification?
			33. The fire rating of the facility is consistent with the Occupancy Class?
			34. Excess combustible loading was not observed?
Y	N	N/A	ELECTRICAL
			35. Proper power cord use (good housekeeping, no trip hazard)?
			<ul style="list-style-type: none"> • Extension cords – temporary use> remove when you leave the lab, single only? • Power strips (UL approved surge protectors) – computer equipment only? • No cording through walls, floors or ceiling?
			36. Electrical cords not frayed or taped and good insulation provided?
			37. Three pronged plugs not altered; ground pins in place?
			38. Ground Fault Circuit Interrupters on outlets with six feet of wet locations?
			39. Electrical panel not obstructed and circuits labeled?
Y	N	N/A	LABORATORY REFRIGERATOR/FREEZER
			40. No Food or Drink sign posted on door?
			41. Food/drink not stored in lab?
			42. Flammables stored in approved safety refrigerator?
			43. In shared rooms emergency contact info posted on equipment?
Y	N	N/A	CHEMICAL STORAGE
			44. Chemicals stored by compatibility group (flammables, oxidizers, acids, bases, reactives, toxins)?
			45. Incompatible chemical physically separated?
			46. Chemicals properly labeled (no chemical formulas)?
			47. Storage areas labeled with compatibility group?

			48. No excess chemicals on bench tops/in hood/under sinks?
			49. Flammable storage: <5 gallon (19L) outside flammable cabinet?
			50. Controlled substances in sturdy, locked cabinet or safe?
			51. Unstable, reactivities or explosives marked with date received and opened date?
			52. Peroxide formers marked with date to be discarded/tested?

Y	N	N/A	HAZARDOUS MATERIALS/WASTE
			53. Time waste pick-up requests (no build-up of waste in lab)?
			54. Waste containers have tightly closed lids that do not leak?
			55. All waste containers are closed unless actively receiving waste?
			56. All hazardous materials and oil pumps stored in secondary containment free of spilled material?
			57. Waste containers at or near the point of generation?
			58. No waste is poured down the drain without prior approval from EH&S?
			59. Container Labeling?
			<ul style="list-style-type: none"> Waste containers are clearly labeled with the word "Hazardous Waste"?
			<ul style="list-style-type: none"> All containers, including non-haz wastes, legibly labeled with the full chemical or trade name?
			<ul style="list-style-type: none"> The specific chemical content (no abbreviation/formulas) is stated on each waste container?

Y	N	N/A	ENGINEERING CONTROLS – FUME HOODS AND BIOSAFETY CABINETS
			60. Exhaust, alarm and motion detector working properly?
			61. Chemical fume hood annual EHS evaluation sticker up-to-date?
			62. Sash kept at or below marked height except for set-up?
			63. Sash kept closed when not in use?
			64. Hood housekeeping – properly maintained, no excess storage?
			<ul style="list-style-type: none"> Haz chemicals used at least six inches inside hood?
			<ul style="list-style-type: none"> Larger items on block and not blocking baffles?
			<ul style="list-style-type: none"> No power strips or surge protectors inside hood?
			<ul style="list-style-type: none"> Hood not being used for long-term chemical storage?
			65. Biosafety cabinets certified within past year (if required)?

Y	N	N/A	PHYSICAL HAZARDS
			66. Belts, pulleys, rotating parts guarded (especially vacuum pumps)?
			67. Stop switches easily accessible?
			68. Equipment is secured, e.g., bolted to floor?
			69. Electrical disconnect unobstructed?
			70. Unattended operating equipment labeled/posted?
			71. Glassware used at pressures other than ambient is taped or shielded?

Y	N	N/A	GAS CYLINDERS
			72. Properly secured (individual chain/cable recommended)?
			73. Cylinders in storage labeled as empty or full?
			74. Caps on cylinders when not in use?
			75. Toxic gases used only in fume hoods or ventilated gas cabinets?

Y	N	N/A	BIOLOGICAL WASTE
			76. Red Sharps containers?
			<ul style="list-style-type: none"> • Properly labeled containers with biohazard symbol?
			<ul style="list-style-type: none"> • Needles not bent or recapped?
			<ul style="list-style-type: none"> • No sharps containers greater than 2/3 full?
			77. Biological Waste treated in the lab?
			<ul style="list-style-type: none"> • Autoclave bio-indicator log maintained?
			<ul style="list-style-type: none"> • Chemically disinfected waste request for approval on file?

Y	N	N/A	BIOSAFETY LEVEL 2 (BSL2)
			78. Easily cleanable surfaces and laboratory furniture (non-porous chairs)?
			79. Hand washing sink?
			80. Safety eyewash and emergency shower?
			81. Inline HEPA filters?
			82. Biohazard symbol on lab equipment used for BSL-2 work?
			83. Entryway signs denoting BSL-2 lab space?
			84. Sharps and aerosol generation precautions?
			85. Routine decontamination?

Y	N	N/A	RADIOACTIVE MATERIALS
			86. Lab entrance posted with "Caution: Radioactive Materials"?
			87. "Notice to Employees" sign posted in laboratory?
			88. Storage and waste areas labeled with "Caution: Radioactive Materials"?
			89. All materials and sources secured by lock and key or personnel attendance?
			90. Radioactive material work area clearly defined?
			91. Records of disposition of isotopes current?
			92. Radiation Safety Manual accessible?

Y	N	N/A	LASERS (Class 3B and 4)
			93. Laser signs are posted on doors?
			94. Protective eyewear available and in good condition?
			95. Warning signs or lights in working properly?
			96. Interlocks working properly?
			97. Unattended laser rooms locked?
			98. Keys not left in an unattended laser control panel?

