

RIVERSIDE: AUDIT & ADVISORY SERVICES

August 7, 2012

To: Russell Vernon, Director
Environmental Health & Safety

Subject: Internal Audit of Laboratory Safety Self-Assessments

Ref: R2012-20

We have completed a limited review of Laboratory Safety Self-Assessments in accordance with the UC Riverside Audit Plan. Our report is attached for your review. We will perform audit follow-up procedures in the future to review the status of management action. This follow-up may take the form of a discussion or perhaps a limited review. Audit R2012-20 will remain open until we have evaluated the actions taken.

We appreciate the cooperation and assistance provided by your staff. Should you have any questions concerning the report, please do not hesitate to contact me.

Michael R. Jenson
Director

cc: Audit Committee Members
Associate Vice Chancellor Miller
Associate Vice Chancellor Carlson

UNIVERSITY OF CALIFORNIA AT RIVERSIDE
AUDIT & ADVISORY SERVICES
MEMBER OF ASSOCIATION OF COLLEGE & UNIVERSITY AUDITORS

INTERNAL AUDIT REPORT R2012-20
LABORATORY SAFETY SELF-ASSESSMENTS

AUGUST 2012

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**UC RIVERSIDE
LABORATORY SAFETY SELF-ASSESSMENTS
INTERNAL AUDIT REPORT R2012-20
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I. MANAGEMENT SUMMARY

Based upon the results of work performed within the scope of the limited review, it is our opinion that, overall, the system of internal control over laboratory safety self-assessments and related processes is operating satisfactorily and is generally in compliance with University policies and procedures.

Positive observations included:

- * Campus management has communicated an unequivocal commitment to safety and underscores the responsibility of supervisors and principal investigators for laboratory workers' safety.
- * In an advisory role, the Office of Environmental Health & Safety (EH&S) provides training, guidance, and tools for department personnel to properly conduct laboratory safety self-assessments at least once a year. EH&S monitors the progress of safety self-assessments by all laboratories, compiles and analyzes data derived from the self-assessment process, tracks safety issues identified until they are resolved, and prepares a quarterly laboratory safety accountability report for departments and campus management.
- * As of March 31, 2012, all departments with laboratories where hazardous chemicals are used have their respective written Chemical Hygiene Plans that were reviewed, evaluated for effectiveness, and updated at least once during the previous year, in compliance with The California Code of Regulations (CCR).

We observed some areas that need enhancement to strengthen internal controls and/or effect compliance with University policy:

As of April 30, 2012:

- 1) 349 (88%) of 395 campus laboratories have completed their annual laboratory safety self-assessments. (Observation III.A.)
- 2) 1,378 (57%) of 2,403 individuals working in UCR laboratories have undergone introductory laboratory safety orientation training. (Observation III.B.)

These items are discussed below. Minor items that were not of a magnitude to warrant inclusion in the report were discussed verbally with management.

II. INTRODUCTION

A. PURPOSE

UC Riverside Audit & Advisory Services (A&AS), as part of its Audit Plan, performed a limited review of UCR laboratory safety self-assessments and selected EH&S processes to evaluate compliance with University policies and procedures, efficiency and effectiveness of selected operations, and adequacy of certain internal controls.

B. BACKGROUND

The University of California is committed to achieving excellence in providing a healthy and safe working environment, and to supporting environmentally sound practices in the conduct of University activities. It is University policy to comply with all applicable health, safety, and environmental protection laws, regulations, and requirements.

The University's goal is to prevent all workplace injuries and illnesses, environmental incidents, and property losses or damage. Achieving this goal is the responsibility of every member of the University community.

During Fiscal Year (FY) 2009-2010, A&AS conducted an audit to evaluate whether EH&S laboratory safety management practices and program procedures were adequate and appropriate, operating as intended, and effective and efficient to provide reasonable assurance that campus laboratories are safe and healthy environments for faculty, staff, students, and visitors.

Based on audit results, Internal Audit Report R2010-03 highlighted some areas that needed to be improved in the laboratory safety program. The present conditions prevailing in these areas as well as management actions to enhance the effectiveness of the laboratory safety program in these areas are the focus of this limited review.

C. SCOPE

The scope of the review was limited to EH&S activities during FY 2010-2011 and FY 2011-2012 to address audit observations and recommendations regarding laboratory safety as discussed in Internal Audit Report R2010-03.

We performed the following procedures:

Responsibility and Accountability

- Reviewed management announcements and online information that communicate the importance of laboratory safety and clarify roles and responsibilities for conducting safe work practices and complying with health and safety policies;

- Reviewed quarterly laboratory safety accountability reports prepared by EH&S, as well as underlying correspondence, spreadsheets, summaries, and related information;

Laboratory Safety Audits/Self-Assessments

- Reviewed laboratory safety audits/self-assessment process narratives, workflow graphics, and plan summaries, and discussed procedural mechanics with the EH&S Director and Laboratory Safety Audit Specialist;
- Reviewed and evaluated the laboratory safety self-assessment database and source documents/checklists for completeness, accuracy, and reliability;

Chemical Hygiene Plans

- Checked that all departmental Chemical Hygiene Plans (CHPs) are accounted for as to existence and as to current status and reported in the quarterly laboratory safety accountability reports;
- Reviewed online copies of departmental CHPs as posted in EH&S webpages and verified that CHPs are reviewed or updated annually, in accordance with applicable regulation;

Laboratory Safety Training

- Reviewed existing procedures for identifying personnel who may require general safety training or particular instruction appropriate for the nature of their work and potential exposures in laboratories;
- Reviewed documents supporting EH&S laboratory safety training program activities, including departmental training plans, analyses, and reports;
- Evaluated current training program methodologies and management resources for adequacy, effectiveness, and efficiency.

D. INTERNAL CONTROLS AND COMPLIANCE

As part of the review, internal controls were examined within the scope of the audit.

Internal control is a process designed to provide reasonable, but not absolute, assurance regarding the achievement of objectives in the following categories:

- * effectiveness and efficiency of operations
- * reliability of financial reporting
- * compliance with applicable laws and regulations

Substantive audit procedures were performed during May through June 2012. Accordingly, this evaluation of internal controls is based on our knowledge as of that time and should be read with that understanding.

III. OBSERVATIONS, COMMENTS, AND RECOMMENDATIONS

A. Laboratory Safety Self-Assessments

Not all campus departments with laboratory operations have completed their annual laboratory safety self-assessments.

COMMENTS

EH&S supports campus departments in the proper conduct of laboratory safety self-assessments, monitors the timely completion of the self-assessments according to annual schedules established by the departments, and reports quarterly on the status of laboratory safety self-assessments and the resolution of safety issues identified in the process.

As of April 30, 2012, 349 (88%) of 395 laboratories required to conduct safety self-assessments during FY 2011-2012 have completed the annual exercise.

Information on the number of research laboratories and the count of laboratories that have completed safety self-assessments as of April 30, 2012 is presented in the following table.

College / Department	Count of Labs	Count of Labs that Completed Safety Self-Assessment	Percent of Labs that Completed Safety Self-Assessment
CNAS			
Biochemistry	21	21	100%
Biology	26	25	96%
Botany & Plant Sciences	55	44	80%
Cell Biology & Neuroscience	21	9	43%
Chemistry	51	51	100%
Earth Sciences	22	22	100%
Entomology	48	46	96%
Environmental Sciences	20	20	100%
Nematology	6	6	100%
Physics & Astronomy	29	29	100%
Plant Pathology & Microbiology	25	17	68%
CNAS – All departments	324	290	90%
CHASS			
Psychology	5	5	100%
SOM			
Biomedical Sciences	25	13	52%
BCOE			
Bioengineering	10	10	100%
CE-CERT	6	6	100%
Chemical & Environmental Engineering	11	11	100%
Electrical Engineering	5	5	100%
Mechanical Engineering	9	9	100%
BCOE – All departments	41	41	100%
UCR Campus – All colleges/departments	395	349	88%

RECOMMENDATIONS

EH&S should continue to encourage department heads to ensure that all laboratories complete the laboratory safety self-assessment process at least once a year. The status of all laboratory safety issues should be tracked and, as deemed necessary, EH&S should conduct independent inspection of selected laboratories to verify that corrective actions are performed timely by parties responsible for addressing laboratory safety issues.

MANAGEMENT RESPONSE

We agree completely and plan to continue and improve this process.

B. Laboratory Safety Training

Completion of required safety training for all laboratory workers is an ongoing process. At present, not all personnel working in UCR laboratories have undergone specific laboratory safety training.

COMMENTS

We reiterate excerpts of one of our comments regarding laboratory safety as discussed in Internal Audit Report R2010-03.

The CCR requires that where hazardous substances and processes are present in the laboratory workplace, employers shall provide employees with information and training to ensure that they are apprised of the hazards in their work area. Information should be provided at the time of an employee's initial assignment to a work area where hazardous chemicals are present and prior to assignments involving new exposure situations. The frequency of refresher information and training shall be determined by the employer.

With a vision to achieving outstanding health, safety, and environmental performance, EH&S provides technical assistance, consulting, and regulatory compliance support to the campus community. EH&S also offers information resources, training, and education opportunities in the subject matter areas of laboratory safety, bio-safety, agricultural/field safety, hazardous waste management, and laser/radiation safety. EH&S may recommend and offer safety training courses to all personnel, but it is up to department management to enforce mandatory safety training for all laboratory workers.

EH&S has been working with departments in maintaining a complete list of laboratory workers with up-to-date information on every individual's training records, identifying potential hazards and the associated safety risks, and determining training agenda appropriate to help manage those risks.

Based on data compiled by EH&S, information on the number of workers assigned to departments with laboratories and the count of individuals who have taken at least the laboratory safety orientation training is summarized in the following table.

Department	Count of Individuals	Count of Individuals Who Completed Training	Percent of Individuals Who Completed Training
Biochemistry	84	31	37%
Bioengineering	153	137	90%
Biology	70	34	49%
Biomedical Sciences	45	15	33%
Botany & Plant Sciences	269	126	47%
CE-CERT	98	68	69%
Cell Biology & Neuroscience	273	105	38%
Center for Conservation Biology	20	9	45%
Chemical & Environmental Engineering	109	76	70%
Chemistry	249	160	64%
Earth Sciences	89	42	47%
Electrical Engineering	129	55	43%
Entomology	282	249	88%
Environmental Sciences	126	74	59%
Genomics Instrumentation Core	6	4	67%
Mechanical Engineering	101	74	73%
Nematology	44	21	48%
Physics & Astronomy	105	20	19%
Plant Pathology	122	58	48%
Psychology	29	20	69%
UCR – All departments	2,403	1,378	57%

RECOMMENDATIONS

EH&S and campus departments should continue working together to maintain a complete and accurate database of laboratory workers and individual training records.

Department management must ensure that laboratory personnel undergo individualized training programs appropriate to the nature of each person's work as well as the potential hazard exposures and safety risks in the laboratory workplace.

MANAGEMENT RESPONSE

As there has been significant push back on the department level spread sheet process we created, we are working to pilot a training accountability procedure with the supervising faculty in Chemistry. We plan to have a system for the department to test by the end of August 2012 and if successful we will roll it out to the whole campus before then end of FY 2012-2013.