



UCSB Audit and Advisory Services  
Internal Audit Report

**Materials Department**

August 22, 2012

**Performed by:**

Albert Rojas, Staff Auditor  
Raphaëlla Nau, Staff Auditor

**Approved by:**

Robert Tarsia, Director

Report No. 08-12-0002

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AUDIT AND ADVISORY SERVICES  
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August 22, 2012

To: Dr. Tresa M. Pollock  
Chair, Materials Department

Re: **Materials Department**  
**Audit Report No. 08-12-0002**

As part of the 2011-12 annual audit plan, Audit and Advisory Services has completed an audit of the Materials Department. Enclosed is the audit report detailing the results of our review.

The purpose of this review was to assess whether business processes and internal controls implemented by the Materials Department are in compliance with University and sponsor requirements and regulations. The scope of our review included:

- Sponsored Projects – Administration and oversight over sponsored projects, direct charging practices, and cost transfers.
- Laboratory Safety – Performance and documentation of self-inspections and lab worker training.
- Recharges – Compliance with UC and UCSB policies and procedures.
- Equipment – Management and acquisition of department inventorial equipment.
- Procurement – Procurement of goods and services and overall compliance with UC policies.

Based on the results of the work performed within the scope of the audit, the department generally has very good processes and internal controls in place in the areas reviewed. The audit found no critical weaknesses; however, our work did identify opportunities for improvement in the areas of laboratory safety, equipment procurement, and recharges. There were no reportable findings in the area of sponsored projects.

Detailed observations and management corrective actions are included in the following sections of the report. The management corrective actions provided indicate that each audit observation was given thoughtful consideration and that positive measures have been taken or planned to implement the management corrective actions. The cooperation and assistance provided during the review by Materials Department staff was greatly appreciated. If you have any questions, please feel free to contact me.

Respectfully submitted,

A handwritten signature in black ink that reads "Robert Tarsia". The signature is written in a cursive style with a long horizontal line extending from the end.

Robert Tarsia  
Director  
Audit and Advisory Services

Dr. Tresa M. Pollock  
August 22, 2012

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Enclosure

cc: Chancellor Henry Yang  
Executive Vice Chancellor Gene Lucas  
Associate Vice Chancellor Ron Cortez, Administrative Services  
UCSB Audit Committee  
Senior Vice President and Chief Compliance and Audit Officer Sheryl Vacca  
Dean Rod C. Alferness, College of Engineering  
Dawn McTague, Management Services Officer, Materials Department

## **PURPOSE**

The purpose of this review was to assess whether business processes and internal controls implemented by the Materials Department are in compliance with University and sponsor requirements and regulations.

## **SCOPE, OBJECTIVES AND METHODOLOGY**

The scope of the audit included a review of financial transactions, sponsored projects, recharges, vendors, equipment, laboratory safety, administrative practices, and other related areas between July 1, 2010, and December 31, 2011.

The scope of our review included:

- Sponsored Projects – Administration and oversight over sponsored projects, direct charging practices, and cost transfers.
- Laboratory Safety – Performance and documentation of self-inspections and lab worker training.
- Recharges – Compliance with UC and UCSB policies and procedures.
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The audit objectives are outlined in Table 1.

To accomplish our objectives, we:

- Reviewed University and campus policies on procurement and management of assets, laboratory safety, and laboratory safety training.
- Performed walkthroughs of Materials Department laboratories.
- Interviewed Materials Department personnel to gain a detailed understanding of department policies and procedures.
- Reviewed financial transactions, including sponsored project direct charges and cost transfers, recharges, and vendor payments.

UCSB Audit and Advisory Services  
Materials Department

Review Area	Objectives
<b>Sponsored Projects</b> <ul style="list-style-type: none"> <li>• Management of Contracts and Grants</li> <li>• Direct Charging Practices</li> <li>• Cost Transfers</li> </ul>	Determine whether: <ul style="list-style-type: none"> <li>• There is appropriate administration and oversight over sponsored projects.</li> <li>• Direct charges are allowable per sponsor restrictions and requirements.</li> <li>• Cost transfers are processed in accordance with UCSB's Cost Transfer policy.</li> </ul>
<b>Laboratory Safety</b> <ul style="list-style-type: none"> <li>• Self-Inspections</li> <li>• Safety Training</li> <li>• Safety Documentation</li> </ul>	Determine whether: <ul style="list-style-type: none"> <li>• Labs are performing self-inspections as required by the Occupational Safety and Health Administration (OSHA).</li> <li>• Lab workers have attended the required safety training courses.</li> <li>• Safety documentation such as the Chemical Hygiene Plan and the UCSB Emergency Information Flip Chart are complete and accessible to all lab workers.</li> </ul>
<b>Recharges</b> <ul style="list-style-type: none"> <li>• Proposals and Rates</li> <li>• Compliance with UC and UCSB Policies</li> </ul>	Determine whether: <ul style="list-style-type: none"> <li>• Recharge rates have been approved by the Income and Recharge Committee.</li> <li>• Proposals are processed and reviews performed as required by UCSB Policy.</li> <li>• Recharges are billed in accordance with UC and UCSB policies.</li> </ul>
<b>Equipment</b> <ul style="list-style-type: none"> <li>• Acquisition</li> <li>• Location and Labeling</li> </ul>	Determine whether: <ul style="list-style-type: none"> <li>• Equipment was acquired in accordance with UC Policy BUS 29, <i>Management and Control of University Equipment</i>.</li> <li>• Equipment is located in the area recorded in the Capital Asset Tracking System (CATS).</li> <li>• UC property tags are placed on the equipment and tag numbers matched the Asset Number listed in CATS.</li> </ul>
<b>Procurement</b> <ul style="list-style-type: none"> <li>• Strategic Sourcing Agreements</li> <li>• UC Policies</li> </ul>	Determine whether: <ul style="list-style-type: none"> <li>• Goods and services obtained were priced according to the master price list in the agreement.</li> <li>• Procurement is performed in accordance with UC policies, including BUS 43, <i>Materiel Management</i>.</li> </ul>

Source: Auditor Analysis

## BACKGROUND

The Materials Department's graduate program was ranked no. 2 in the nation among public universities in 2012 by *U.S. News and World Report*. The Department provides support to faculty, graduate students, and researchers from various fields of research; this includes approximately 27 faculty members and 15 affiliated faculty members specializing in Structural Materials, Macromolecular and Biomolecular Materials, Inorganic Materials, and Electronic and Phototonic Materials. As a graduate program, the Department fosters multidisciplinary education by encouraging the joint faculty supervision of research, as well as encouraging student collaboration across various campus departments and research fields.

There are approximately 30 research labs within the Materials department, with the larger labs being the Molecular Beam Epitaxy, Materials Processing Laboratory, and the Microscopy & Microanalysis Laboratory. In addition to campus-wide efforts by Environmental Health & Safety, and as part of its commitment to keep the department a safe environment, the Materials Department provides health and safety information and guidelines to all associated faculty, staff, and students.

The Materials Department is part of the College of Engineering. The department chair reports to the Dean of the College of Engineering. Administrative services are under the direction of the management services officer. There are approximately 11 administrative staff members in the Materials Department, including 4 who are involved in managing the department's financial resources. During fiscal year 2011-12, department staff managed approximately \$10.3 million in total new award allocations and unrestricted research funds. According to Materials Department management, the level of staffing makes it difficult to properly manage the department's sponsored projects and financial resources.

Table 2 summarizes the new award amounts from research contracts and grants from various sponsors, as well as unrestricted research funds for the past three fiscal years. The projects are funded by various agencies including the Department of Defense, the Office of Naval Research, and the National Science Foundation.

<b>Table 2</b>		<b>Materials Dept. Sponsored Projects: New Awards &amp; Unrestricted Research Funds</b>
<b>Fiscal Year</b>	<b>New Award Amount</b>	
2010	\$12,776,773	
2011	\$10,071,736	
2012	\$10,293,427	

Source: Figures were obtained from Materials Department management. These figures also include unrestricted research funds received from industry partners.

## SUMMARY OPINION

Based on the results of the work performed within the scope of the audit, the department generally has very good processes and internal controls in place in the areas reviewed. The audit found no critical weaknesses; however, our work did identify opportunities for improvement in the areas of laboratory safety, equipment procurement, and recharges. There were no reportable findings in the area of sponsored projects.

Audit observations and management corrective actions are detailed in the remainder of the audit report.

**DETAILED OBSERVATIONS AND MANAGEMENT CORRECTIVE ACTIONS**

**A. Laboratory Safety**

We selected five department labs and determined whether required laboratory self-inspections were being performed, laboratory safety training was completed by all laboratory workers, and the required laboratory safety documents and posters were available and visible to all laboratory workers. We also interviewed the Environmental Health and Safety (EH&S) Lab Safety and Injury and Illness Prevention Program Manager to gain an understanding of the UCSB Lab Inspection Program. As part of a memorandum of understanding between the University, Santa Barbara County Fire Department, and the State Fire Marshall, EH&S has been tasked with performing annual inspections of campus laboratories.

We performed a walkthrough of all five labs and found no critical weaknesses, although we identified opportunities for improvement in the following areas:

- We could not determine whether laboratory self-inspections were being performed because documentation of self-inspections was not being maintained.
- Some lab workers had not completed the required EH&S laboratory safety training courses.
- Some students were unaware of the Chemical Hygiene Plan (CHP) and of its location. The CHP includes policies, standard operating procedures, and other resources to help ensure that employees are protected from harm due to chemicals.

1. Documenting Lab Self-Inspections

Although EH&S performs lab inspections at least once yearly, laboratory supervisors are required by Occupational Safety and Health Administration (OSHA) regulations to perform regular self-inspections at least quarterly for units with frequent personnel changes, or semiannually for others. Of the five labs reviewed, one lab documented a self-inspection performed during the spring 2012 quarter and others had not documented the self-inspections. Although UCSB policy does not clearly state that self-inspection checklists should be maintained by the department, without documenting the self-inspections using either the checklist provided by EH&S or other appropriate documentation, there is no evidence that the self-inspections were performed, as required. For example, a good practice would be to retain self-inspection records for at least two years.

2. Laboratory Safety Training

The UCSB *General Laboratory Safety Training* policy states that all laboratory workers must complete one or more EH&S general laboratory training orientation sessions prior to being given access to laboratories. Based on information maintained on the EH&S website, two out of 61 individuals currently working in the labs had not completed the required training; one of these individuals was a lab safety coordinator. In order to ensure laboratory safety, all laboratory workers must complete the required EH&S lab safety training courses.



### 3. Chemical Hygiene Plan and Other Safety Documentation

OSHA requires that laboratory supervisors develop and communicate a written CHP. All labs visited during the audit had a CHP. However, we could not initially locate the CHP in one lab, and two lab workers we asked were unaware of its location. All lab workers must be made aware of the CHP as it provides important, lab-specific information that can help limit hazards to lab workers.

Audit and Advisory Services has advised EH&S that it would be prudent to remind all departments to retain self-inspection records. Audit and Advisory Services will also provide input regarding retention requirements for these records to the current initiative to revise and update UC records retention schedules.

#### **Management Corrective Actions**

- The Materials Department takes safety very seriously. In fact, we are currently partnering with Dow on a laboratory safety program and consider ourselves to be a frontrunner on lab safety policies. Not only are quarterly self-inspections completed in conjunction with the Safety Coordinator for the College, they have become a mandatory practice for all labs. There is currently no campus policy which states that self-inspection documentation be retained, and EH&S is the house of record for all laboratory safety documentation. As a point of fact, the annual EH&S safety inspections happened as the audit was closing and there were no serious deficiencies reported in any of our over 30 laboratories.
- The two employees have now received all the necessary training. The lab safety coordinator had taken training previously; however, his training was outdated and the department has since corrected that.
- As part of our departmental safety commitment, all CHPs for labs have been updated and laboratory safety representatives will be working with personnel in the labs to ensure knowledge of location of all CHPs.

Audit and Advisory Service will follow up on the status of this corrective action by July 1, 2013.

### **B. Recharges**

The two recharge facilities included in our review were the Molecular Beam Epitaxy (MBE) and Materials Processing Lab (PROC). The MBE had \$604 thousand in recharge activity during the audit period of July 2010 to December 2011, the highest among Materials Department facilities. The facility recharges for lab usage, substrates, materials, and use of equipment.

1. Recharge Rates

We reviewed five MBE transactions that had been recharged to sponsored projects. We found that the rates used to charge for goods and/or services were not approved by the Income and Recharge Committee, and that the last recharge proposal was approved in 2006. The UCSB *Income and Recharge Guidelines* require recharge centers to submit a rate revision packet to the Income and Recharge Committee annually for approval. We also observed that the PROC recharge rates were last approved in 1996. Both the MBE and PROC submitted rate revision packets to the Income and Recharge Committee in May 2012, during the course of the audit.

2. Account Deficits

Both the MBE and PROC labs recharge accounts were in deficit during the audit period. The MBE account was in overdraft by \$403 thousand and PROC by \$67 thousand. The account-funds for both labs were in overdraft for a period of over 12 months. The MBE recharge proposal dated August 17, 2006, mentions that the increase in recharge rates was in part to recover a \$92 thousand deficit, indicating that the MBE was operating in a deficit prior to 2006, the year of the last approved review. As stated in the UCSB *Income and Recharge Guidelines*, year-end surpluses or deficits should not exceed one month of the recharging unit's activity and any deficits should be eliminated within a three-year period.

In order to ensure that recharge centers are in compliance with campus recharge policies, annual reviews should be performed and submitted to the Income and Recharge Committee. The Materials Department should consult with the Income and Recharge Committee (Office of Budget and Planning) in devising a plan in an effort to eliminate recharge center deficits.

**Management Corrective Actions**

- We agree with the audit findings. As was mentioned in the audit report, the department has submitted recharge packages to the Office of Budget and Planning to ensure compliance with the annual rate review requirement. As noted during the audit, the Materials Department has taken a 40% reduction in staff since 2007-08 and that has impacted the workflow in this area.
- As part of the rate package, we have included a plan to recoup the deficit over a three-year period. Rates will be reviewed annually to ensure compliance with this deficit recovery plan.

Audit and Advisory Service will follow up on the status of this corrective action by July 1, 2013.

**C. Equipment**

The Materials Department is responsible for managing over 430 pieces of equipment valued at over \$18 million. All equipment is tracked in the campus Capital Asset Tracking System (CATS). Listed in CATS is the location of the equipment, the asset number assigned by the Equipment Management Department, and whether inventory of this item should be taken. Once equipment has been registered with the Equipment Management Department, the custodial department receives a UC property tag matching the asset number found in CATS. The tag should be placed on the equipment once it has been received, with the equipment typically in the location listed in the system.

We selected five pieces of equipment for review. Our review included a verification of the actual location of the equipment and verification that a UC property tag was placed on the equipment and matched the asset number listed in CATS. We also reviewed the purchase documents for each asset to ensure that the items were procured in accordance with UC and UCSB policies. We found that all the equipment was in the location listed in CATS, and that all property tags were placed on the equipment and matched the asset number listed in CATS.

#### 1. Procurement

It was our observation that all equipment is generally procured in accordance with UC policies. One of the pieces of equipment selected for review, valued at nearly \$700,000, had not yet been delivered to campus. All equipment information is initially added into CATS by the Equipment Management Department (i.e., not the Materials Department), and there was no information in CATS indicating that the equipment had not yet arrived, except for the room number field being left blank. There was documentation from the vendor indicating that the equipment would not be shipped until September 2012, and we also found that a deposit in the amount of \$194,593 was provided to the vendor using sponsored project funds. As required by UC policy BUS 43, *Material Management*, payment should not be provided to the vendor until the materials or supplies have been delivered or accepted. Although it is not uncommon for vendors to request a deposit for high-valued items, this type of transaction does expose the University to some risk, should the vendor not provide the promised goods and be unable to refund the deposit.

The University is currently revising its procurement policies, and the revised policies will provide guidance on advance payments to vendors. Should vendors require this type of payment in the future, the Materials Department should consult with Purchasing on the status of this policy update and to ensure that the risk exposure related to recovery of the prepayment (if the vendor does not follow-through with its provision of agreed-upon goods or services), is addressed in appropriate contract or purchase order terms and conditions. The department should also ensure and document that it has adequate unrestricted, non-sponsor funds to cover the deposit amount.

#### **Management Corrective Actions**

Per the terms and conditions negotiated with the campus Purchasing Office, the purchase order in question specified that an initial deposit be paid. The department does not negotiate purchase orders, as that is a central campus function. The department does not see the purchase order agreement until it is finalized and signed by an authorized campus representative (in the Purchasing Office) and the vendor. Should vendors require this type of payment it should be negotiated at the campus level to protect the campus and the funding source from the issues outlined in the report. The department realizes that the funds expended are under departmental control; however, much like with contract and grant negotiation, we have no authority to negotiate high value purchase orders.

Per the audit report, it appears that the campus and Purchasing are working with a newly revised (August 2012) procurement policy, which addresses this at the appropriate campus level. With this new policy, the department will be sure to follow up on any prepayment terms with Purchasing should they not meet the standards set forth in the new policy.

Audit and Advisory Service will follow up on the status of this corrective action by July 1, 2013.