



UCSB Audit and Advisory Services  
Internal Audit Report

**Earth Research Institute**

July 13, 2012

**Performed by:**  
Albert Rojas, Staff Auditor

**Approved by:**  
Robert Tarsia, Audit Director

Report No. 08-12-0011

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AUDIT AND ADVISORY SERVICES  
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July 13, 2012

To: David Siegel  
Director, Earth Research Institute

Re: **Earth Research Institute  
Audit Report No. 08-12-0011**

As part of the 2011-12 annual audit plan, Audit and Advisory Services conducted an audit of the Earth Research Institute (ERI). Enclosed is the audit report detailing the results of our review.

The primary purpose of the audit was to assess whether business processes and internal controls established by ERI are in compliance with University and sponsor regulations. The review included discussion with ERI faculty and staff and limited testing. The scope of the audit included:

- Costing practices, including direct charging, overdrafts, cost transfers, and subawards.
- Recharge rates and calculations.
- Overall department administrative and sponsored project procedures.

Based on the results of the work performed within the scope of the audit, the institute generally has very good processes in place for the areas reviewed. However, some improvements in the institute's practices are needed to ensure compliance with University and sponsor requirements. Areas requiring improvement include recharges, clarification and documentation of sponsored project procedures, conflict of interest monitoring, and business continuity planning.

We have included a copy of our detailed observations and management corrective actions. The management corrective actions provided indicate that each recommendation was given thoughtful consideration and that positive measures have been planned to implement the corrective actions. The cooperation and assistance provided during the review by ERI personnel was sincerely appreciated. Please feel free to contact me if you have any questions.

Respectfully submitted,

A handwritten signature in cursive script that reads "Robert Tarsia".

Robert Tarsia  
Director  
Audit and Advisory Services

Enclosure

Director David Siegel  
July 13, 2012

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cc: Chancellor Henry Yang  
Vice Chancellor for Research Michael Witherell  
Associate Vice Chancellor Ron Cortez  
UCSB Audit Committee  
Senior Vice President and Chief Compliance and Audit Officer Sheryl Vacca  
Associate Director Susannah Porter  
Management Service Officer Kathy Scheidemen

## **PURPOSE**

The primary purpose of the audit was to assess whether business processes and internal controls established by the Earth Research Institute (ERI) are in compliance with University and sponsor regulations.

## **SCOPE, OBJECTIVES AND METHODOLOGY**

The scope of the review was limited to sponsored projects and financial transactions that occurred between July 2010 and December 2011. Audit objectives were developed for review of:

- Costing practices, including direct charging, overdrafts, cost transfers, and subawards.
- Recharge rates and calculations.
- Overall department administrative and sponsored project procedures.

Table 1 in this section details the audit objectives for each review area.

To accomplish our objectives, we gained an understanding of current University requirements and ERI's policies and procedures. We held discussions with ERI management and staff to gain an understanding of ERI's procedures for administering sponsored projects. We evaluated ERI's business practices to determine whether they incorporate adequate internal controls, and performed detailed testing in several areas to determine whether internal controls are in place and operating as intended.

This audit was conducted in conformance with the *International Standards for the Professional Practice of Internal Auditing*.

UCSB Audit and Advisory Services  
Earth Research Institute

<b>Table 1    Audit Objectives</b>	
<b>Review Area</b>	<b>Objectives</b>
<b>Direct Charging Practices</b>	<p>To determine whether expenses were:</p> <ul style="list-style-type: none"> <li>• Allowable under the sponsor's terms and conditions.</li> <li>• Reasonable, or reasons for apparently excessive costs were documented and appropriate.</li> <li>• Processed in accordance with UCSB's procurement and payable procedures.</li> <li>• Properly approved.</li> <li>• Otherwise reasonable and supported.</li> </ul>
<b>Overdrafts</b>	<p>Identify the account-funds that had significant overdrafts and assess the underlying reasons for the overdrafts.</p>
<b>Cost Transfers</b>	<p>To determine whether cost transfers were:</p> <ul style="list-style-type: none"> <li>• Properly approved.</li> <li>• Appropriate and in compliance with UCSB cost transfer policies.</li> <li>• Supported by adequate justifications.</li> <li>• Completed within 120 days of the initial charge.</li> <li>• Reasonable and otherwise supported.</li> </ul>
<b>Subawards</b>	<p>To determine whether:</p> <ul style="list-style-type: none"> <li>• The required Subrecipient Commitment forms were completed.</li> <li>• Costs were allowable, allocable, and reasonable.</li> <li>• Costs were incurred within the period of performance of the subaward.</li> <li>• Invoices were approved by the Principal Investigator.</li> <li>• If applicable, the Subaward Close-Out Certification was completed.</li> </ul>
<b>Recharge Calculations</b>	<p>Assess the Cheadle Center for Biodiversity and Ecological Restoration's fiscal year 2012-13 Restoration and Supplies recharge rates to determine whether the rates were calculated correctly per UCSB Income &amp; Recharge Guidelines.</p>
<b>Recharges</b>	<p>To determine whether :</p> <ul style="list-style-type: none"> <li>• The department used the correct (approved) recharge rate.</li> <li>• There was adequate documentation to support the recharge.</li> <li>• The goods and services provided were recharged the month after they were provided.</li> <li>• The recharge was reasonable and otherwise adequately supported.</li> </ul>

Source: Auditor Analysis

**BACKGROUND**

The Earth Research Institute (ERI) was formally created as a new Organized Research Unit (ORU) in July 2011; however, the administrative services of its predecessor ORUs began to cluster in September 2009. The new institute was built upon the merger of two ORUs: the Institute for Crustal Studies (ICS) and the Institute for Computational Earth System Sciences (ICISS). The combined research interests of the current researchers and participating faculty in ICS and ICISS enabled the new ORU to create a wholly new academic research enterprise in Earth Sciences. The new ERI fosters new multidisciplinary understandings of how mankind and Earth processes (primarily natural hazards) change Earth.<sup>1</sup>

The research mission of ERI includes five broad research areas: natural hazards, human impacts, earth system science, Earth evolution, and environmental information management. In addition, ERI provides recharge services for the use of its environmental scanning electron microscope, Compute Staff time, and supplies.

In February 2011, the Cheadle Center for Biodiversity and Ecological Restoration (CCBER) operation was transferred from the Marine Science Institute to ERI. The mission of CCBER is to support education, research, collections management (e.g., biological samples), ecosystem management, restoration and conservation, K-12 academic preparation and community education programs, public service, and professional advising. There are two recharge operations within CCBER, Restoration and Supplies. Table 2 summarized the goods and services provided by the two recharge operations.

<b>Table 2</b>		<b>CCBER Recharge Operations – Goods &amp; Services</b>	
<b>Restoration</b>	<b>Supplies</b>		
<ul style="list-style-type: none"> <li>• Advising campus on ecological value of land or impacts of proposed development on protected natural resources.</li> <li>• Implementation of Habitat Restoration Plans.</li> <li>• Monitoring of natural resources.</li> <li>• Integration of the services with education, research, and outreach missions of UCSB.</li> </ul>	<ul style="list-style-type: none"> <li>• Sales of native plant books, nature cards, and clothing.</li> </ul>		

Source: Restoration and Supplies recharge packets submitted to the Income & Recharge Committee for fiscal year 2012-13.

The UCSB Income & Recharge Guidelines provide guidance for preparing recharge rate proposals. In addition, the Office of Budget and Planning provides a rate proposal spreadsheet with embedded formulas to help departments develop recharge rates.

ERI is funded from a variety of sources, including allocations from state funds, gifts funds, equipment usage and service recharges, and research contract and grants from various sponsors. Table 3 summarizes the new award amounts from research contracts and grants from various sponsors for the past three fiscal years.

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<sup>1</sup> Source: Establishment of the Earth Research Institute document.

<b>Table 3</b>		<b>ERI Sponsored Projects: New Awards</b>	
<b>Fiscal Year</b>		<b>New Award Amount</b>	
2010		\$12,200,696	
2011		\$13,765,748	
2012*		\$9,540,915	

Source: ERI Advisory Committee Meeting presentation dated May 23, 2012.

\* Figure is as of May 23, 2012.

According to the ERI Formation Committee, ERI now has new administrative and information technology staff organizations that are more flexible and resilient than they were under separate ORUs, and that enable the merged units to deal effectively with budgetary reduction targets and rapidly expanding contract and grant administration responsibilities. For fiscal year 2010-11, there were 75 staff members (technical, administrative, etc.), 177 academic personnel (faculty, professional researchers, project scientists, etc.), 64 graduate student employees and research fellowships, and 123 undergraduate student employees.

### **SUMMARY OPINION**

Based on the results of the work performed within the scope of the audit, the institute generally has very good processes in place for the areas reviewed. However, some improvements in the institute's practices are needed to ensure compliance with University and sponsor requirements. Areas requiring improvement include recharges, clarification and documentation of sponsored project procedures, conflict of interest monitoring, and business continuity planning.

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



**DETAILED OBSERVATIONS AND MANAGEMENT CORRECTIVE ACTIONS**

**A. Improve Recharge Processes**

The audit found that recharge rate proposal packets were not always completed on an annual basis (as required by UCSB Income & Recharge Guidelines) or calculated correctly, and that ERI did not always charge the correct, approved recharge rates. We tested a sample of 10 recharges for the period July 2010 through December 2011; Table 4 summarizes the results of the review.

<b>Table 4</b>		<b>Recharges – Audit Results</b>
<b>No. of Instances</b>	<b>Issue</b>	
3	Wrong recharge rates were used to charge customers. Customers were recharged at a rate of \$189.24 for the use of a microscope and technical help when they should have been charged \$188.76.	
1	Services provided were not recharged in a timely manner. The service was recharged two months after the services were performed.	
1	Department could not provide detailed backup to support the recharge.	

Source: Auditor Analysis

The audit also found the following:

- The CCBER and Microscope and Compute Staff recharge packets were not completed for fiscal year 2010-11, since ERI was in the process of merging the Institute for Crustal Studies and the Institute for Computational Earth System Science. The UCSB Income & Recharge Guidelines require that, “All rates must be presented to the Income & Recharge Committee at least once per year for review.”
- There is not a practice for submitting income and revenue statements for each income and recharge account to the Income & Recharge Committee after the year-end closing, as required by the UCSB Income & Recharge Guidelines.
- Income generated from external clients for CCBER’s Restoration and Supplies recharge center was deposited into one income account. (Department personnel contacted Accounting Services & Controls to set up a separate income account for the Restoration recharge center in response to our inquiries during the audit.)

We also found some calculation errors and other issues in the recharge packet for CCBER’s Restoration recharge center. We found one instance of each of the following:

- The rate charged for the restoration coordinator’s annual salary was \$768 less than the rate in UCSB’s payroll system, PPS.

- There was insufficient documentation supporting how a supplies and expense rate was calculated.
- There was an error in the MS Excel formula for calculating the costs related to native plant production costs.

It is important that recharges to both sponsored project funds and University funds are correct and properly supported. To improve procedures for developing recharge rates and processing recharges, written department procedures should be developed to cover:

- Providing the necessary documentation for the figures used in the recharge calculations.
- Having better communication and coordination between key individuals who prepare recharge packets.
- Labeling modifications to recharge packets.
- Recharging for goods and services in a timely manner.
- Reviewing recharge billing to ensure proper recharge rates are used.
- Providing an additional review of completed recharge packets prior to submission to the Income & Recharge Committee.

### **Management Corrective Actions**

We concur with the findings. Response to each recommendation:

- Documentation for figures used in the recharge calculations has been provided to Budget and Planning. These will be updated with the packet on a yearly basis.
- The formula areas identified in the audit resulted from revision control issues (allowing others to edit the packet and return to the Management Service Officer (MSO)). In the future, others involved in updating the packet will not have access to the official record copy. The MSO will capture changes indicated by others, updating the official copy for changes indicated. Communication with the individuals providing information for the packet will be printed or captured via pdf and included with the departmental files.
- Recharge packets (Excel files) have been updated to include modification dates.
- The recharge rates have been posted on our website (please see [http://eri.ucsb.edu/administrative/recharge\\_rates](http://eri.ucsb.edu/administrative/recharge_rates)). The Compute Team salary rate charged incorrectly during the audit period resulted from incorrect rates being entered in an Excel worksheet. The rates are no longer entered in a manual worksheet as the process has been automated. In the new process, the Compute Team generates the worksheet with the rates hard-coded and will update to the new rates each year upon approval by the Rate and Recharge Committee. For the microscope recharges (this remains a manual process), the administrative staff will compare the worksheet to the rates listed on the website and verify the rates prior to recharge entry.
- The errors identified in the CCBER Recharge packet fall into two categories: carry forward of prior established rates (CCBER supply costs) and minor errors. ERI will not carry forward prior established rates but will complete a new analysis of costs each year, and will include these calculations as recharge packet back-up. For the other errors, the proposed rate impact was as follows:

1. Restoration coordinator salary was not updated for a recent change (\$768). This error resulted in reducing the proposed rate by \$0.11/hour. Had Audit not identified the error, this might have resulted in a total estimated under recharge of \$1,009.86.
2. The error in the formula for native plants (changed from two people to one but neglected to remove the "2\*" from the formula, see revision control discussion) resulted in a proposed recharge rate of \$0.36 higher per plant. Although this is a significant difference in the actual rate, the total number of plants recharged by CCBER is low; the recharge packet estimates 1,000 plants will be recharged over the course of the year. The estimated error in the proposed rate could have resulted in over recharging approximately \$360.00.

Given that the identified errors are small (\$1,369.86 in packet of \$686,247, or 0.2%) and available staff time is limited, we question the value of having an additional staff member dedicate time to the review of each formula within the 22-worksheet CCBER restoration packet (to catch the \$360 error, it would require this level of examination). We will implement the revision control indicated above with the MSO controlling the official packet. In future packets, ERI will complete a final review of salary and benefit rates to verify current rates are reflected. This additional review will address the larger error (\$1,009.86) identified by Audit while the revision control procedure should address the other error.

Audit and Advisory Services received documentation of the correction of the errors noted. We will follow up on the revision control aspect of this corrective action by October 31, 2012.

## **B. Refine and Better Document Sponsored Projects Procedures**

The audit findings suggest that enhanced written procedures for administering and monitoring sponsored projects would help ensure that the department meets its obligations to the University and sponsoring agencies. The audit noted the following:

- Campus procedures have not been developed to monitor PI commitment to sponsored projects to ensure that each PI's commitment is not greater than 100%.
- The department does not track level-of-effort when PIs reduce their level-of-effort on sponsored projects. PIs are usually required to notify the sponsoring agency when their level-of-effort on a sponsored project is reduced by more than 25%.
- Procedures have not been developed to ensure that required Cost Sharing Contribution reports are completed, since the department relies on the reports generated by Accounting Services & Controls. Cost sharing should also be monitored at the departmental level.

Although the audit found that the department has implemented sound business practices, additional improvement would help facilitate sponsored projects administration and monitoring. To accomplish this, the department should develop written procedures that cover requirements for PIs to notify both the sponsoring agency and ERI when their level of effort on a sponsored project reduces by more than 25%.

The department should also consult with the following departments for guidance:

- The Office of Research, to determine if there are more effective ways to monitor PI commitment to sponsored projects to ensure that each PI's commitment is not greater than 100%.
- Accounting Services & Controls and Office of Research, to identify other ways the department could gather the cost sharing information needed to complete Cost Sharing Contribution reports.

### Management Corrective Actions

We concur with the findings and would like to see level-of-effort tracking addressed at the campus level, as the risk relating to both changes in proposed level-of-effort, and the capture of correct information within the Effort Reporting System, extends beyond ERI, impacting each unit on campus managing contracts and grants.

For managing the ERI portion of level-of-effort, we have modified our PI award notification emails (new awards and increments) generated within our departmental management system (GUS) to include the following text: *"Please keep in mind that most sponsors require notification when work efforts of the PI or Co-PI are reduced by more than 25%. Please contact [financial@eri.ucsb.edu](mailto:financial@eri.ucsb.edu) if your proposed level-of-effort changes during the life of the project."* Samples of these emails were forwarded to Audit and Advisory Services on July 9, 2012.

We believe this requirement could most effectively be addressed at a campus level through implementation of a central system that would allow for identification of differences between submitted and actual level-of-effort. As background, faculty level-of-effort as listed within ORBiT has no further certifications beyond the data sheet. This information is not captured in the Effort Reporting System in a manner that allows campus to determine changes in level-of-effort. Determining actual changes in effort is challenging, as some changes may be monetary vs. effort-related (e.g., faculty might list a 2% level-of-effort and a month of summer salary and may work the same amount, but opt not to take the summer salary pay). Without involving faculty in certifying their efforts (as is done in the Effort Reporting System), there is no systematic way to identify or differentiate between level-of-effort and pay changes. ERI would be happy to be involved in a campus effort to build a tracking/certification system.

For Cost Share tracking, we also believe this is best addressed centrally, as systems are already in place that could be utilized to address this concern. Cost sharing reports are generated by Accounting and are currently tracked via an Excel spreadsheet. ERI has worked with Accounting in the past to ensure that all reports for our units are up to date.

Utilization of an Excel spreadsheet is not ideal from a campus perspective. While ERI personnel would like to see a fully integrated system linking ORBiT, Data Warehouse (auto-feed of related payroll data), and the Effort Reporting system, a first step toward better cost share tracking could be the addition of this information within the ORBiT system. Currently ORBiT tracks final reports due and these records can be viewed by department liaisons. If cost share and matching reports were added to this database, the campus tracking responsibility could be addressed within ORBiT and linked to the award records. If the current structure of ORBiT will not allow for the addition of these types of reports, the

addition of a table within ORBiT containing the necessary fields would allow Accounting to pull reports and update the central contract/grant records for new information. Display access would allow departments to verify that records are current and reporting is timely.

Audit and Advisory Services will follow-up with ERI and the Office of Research by October 31, 2012, regarding the status of the level-of-effort and cost sharing issues.

### **C. Improve Conflict of Interest Monitoring**

ERI is not informed when there are any positive or negative disclosures that come from the completion of required Conflict of Interest reporting. Positive disclosures of potential conflicts of interest are reviewed by the Conflict of Interest (COI) Committee. The COI Committee assesses the details of disclosure and the research project, and advises the Vice Chancellor for Research whether the funding for the research should be accepted and, if so, what conditions are needed to manage the potential conflict. The Vice Chancellor for Research makes the final determination regarding funding acceptance and COI management strategies. The COI Committee's recommendations are documented in the meeting minutes, which are signed by the Conflict of Interest Coordinator and Committee Chair. The Vice Chancellor for Research also signs, indicating if the recommendation of the Committee is accepted as-is or with specified modifications.

Once the Vice Chancellor for Research approves the COI Committee's recommendations, Office of Research personnel are responsible for administering the management plan, if one is required. In most cases, the management plan is not communicated to the departments. However, the department is normally involved only when an individual within the department maintains a gift or other type of funding for the faculty member's research before it is distributed for use by the faculty member.

According to the *UC Policy on Disclosure of Financial Interests and Management of Conflicts of Interests Related to Sponsored Projects*, "conflict of interest or perception of conflicts of interest occur when an investigator's private interests combine with his or her research interests, such that an independent observer may question whether the investigator's research is inappropriately biased by potential financial gain."

While there are policies to determine who reviews the Conflict of Interest forms and when, there is no guidance on how that information gets communicated to campus departments. Without communication regarding COI management plans between the COI Committee and campus departments, the departments cannot effectively monitor whether any conflict of interest issues arise in the spending of award funds, such as the use of suppliers or other transactions covered by a relevant COI management plan.

To improve transparency between the COI Committee and campus departments regarding positive or negative disclosures, ERI should consult with the Office of Research to determine if there are ways to improve communication regarding identified conflict of interest issues.

**Management Corrective Actions**

*Earth Research Institute*

We concur with this finding and hope that this can be addressed at a level that allows departments to avoid unnecessary risk. The campus appears to be utilizing a narrower definition of conflict than that listed above (“conflict of interest or perception of conflicts of interest occur when an investigator’s private interests combine with his or her research interests, such that an independent observer may question whether the investigator’s research is inappropriately biased by potential financial gain”), leaving departments open to risk due to monetary or time conflict of interest. We would like to see greater campus transparency on this issue (e.g., notification of any positive reports, collection and dissemination of information regarding any PIs with ownership interests in outside companies) as it would allow departments the opportunity to evaluate risk more effectively and to reinforce with PIs various conflict rules/procedures.

*Office of Research*

The Research Compliance Director in the Office of Research agrees to make limited changes to the COI follow-up process. After the COI Committee determines that a positive disclosure will result in required conflict management actions, they will notify departmental staff along with the disclosing researcher so that all involved parties understand the outcome of the committee decision. The new process will begin in July 2012.

Audit and Advisory Services will follow-up by October 31, 2012, to ensure that the corrective actions have been implemented by ERI and the Office of Research.

**D. Business Continuity Planning**

A business continuity plan has not been developed to ensure that the department can continue its operations under adverse conditions. UC’s Risk Management organization recommends that all departments complete business continuity planning using the UC Ready<sup>2</sup> tool to help prepare for disruptive events, including those that are all-encompassing (earthquake, pandemic illness), localized (fire in a building, basement flood), or personal (failure of a computer hard drive).

During the course of the audit, ERI began preparing a UC Ready plan.

To help ensure that the department can accomplish its mission through adverse situations, ERI should complete its UC Ready business continuity plan.

**Management Corrective Actions**

The ERI plan was submitted via UC Ready prior to the deadline of June 30, 2012, identified by Office of Research. We responded to the system questions and created a separate document in order to consider research related needs. Feedback received from Environmental Health & Safety on June 6, 2012, acknowledged submission of the ERI plan

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<sup>2</sup> UC Ready is a continuity planning program that is being implemented throughout the UC system.

and the additional document uploaded to identify research needs (email forwarded to Audit on June 12, 2012).

For the research component of the plan, the ERI process was to:

1. Contact various home departments and request a list of space assignments for our PIs.
2. Pull the equipment inventory for ERI (sort by PI).
3. Edit the plan to include the PI's research area, current staffing via ERI, current equipment, and the space assignments per information received from the home departments.
4. Send the plan with an email to the PIs explaining the goal and requesting edits.

To date, we have received edits from all but eleven of our PIs. The full document has been uploaded with a notation that review by these eleven PIs is pending. We consider this a living document and will continue updating as information is received or as identified needs change.

We would like to take this opportunity to thank Audit for taking the time to complete a review of our processes. The effort and the resulting feedback have been greatly appreciated.

Audit and Advisory Services will follow-up by October 31, 2012, on the finalization of ERI's UC Ready business continuity plan.