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Executive Summary

A limited review of The University of Texas at Austin (University) was conducted to focus analysis on highest risk areas and improve audit efficiency. Weaknesses were noted in selected management controls involving the implementation of environmental health and safety policies and the internal audit plan. Additional areas for improvement relate to management of patent technology and building renovations.

A high-level assessment of management controls did not identify weaknesses in financial systems; however, other audits (planned or in-progress) address University contracts and grants expenditures.

The University should be commended for developing an innovative system for managing performance and budgets in its academic departments. The COMPACT 2000 system establishes a "contract" between Deans and the Provost concerning expected achievements and allocated resources for each college.

Some Campus Safety Risks Continue to Exist Despite Management's Efforts

Recurring noncompliance with laboratory research policies poses a significant risk to the safety of students and employees on campus. Since a 1996 six-alarm fire occurred at a lab on campus, management has initiated several improvements, including $30.2 million in safety renovations at the lab and establishment of more stringent research procedures. However, certain faculty members have repeatedly violated University safety procedures and sometimes state regulations without penalty. Contributing factors to continued noncompliance include reluctance to exercise available sanctions and the lack of a system for identifying students or employees who have not received required safety training.

Some safety risk is also associated with aging campus facilities. Since most of the buildings on campus were constructed over 20 years ago, several research buildings and residence halls do not have modern safety features such as sprinkler systems. Although management has scheduled and implemented selected safety renovations, these key areas of campus have not been fully evaluated or included within existing deferred maintenance or capital improvement plans.

Unissued Audit Reports and Inadequate Communication With the Internal Audit Committee Inhibit Timely Oversight of University Operations

The inability to complete the majority of planned audits limits the flow of information required for effective oversight of University operations, budgeted at $884 million. Oversight responsibility is shared by University management, the Internal Audit Committee, The University of Texas System Board of Regents, the Legislature, and other external entities. Although the majority of the Office of Internal Audits' hours were charged to audits, 17 of the 21 audits planned for fiscal year 1997 did not have a report issued.

Several factors affected the ability to complete planned audits. Turnover in the Office of Internal Audits (Internal Audit) was one contributing factor, and University management recently increased Internal Audit's salary schedule in an effort to reduce that trend. Other factors contributing to decreased productivity include prolonged delays in issuing reports and inadequate administrative systems within Internal Audit. In addition, the content and format of the status reports provided to the Internal Audit Committee do not clearly communicate the

resources expended for audits carried over from previous years or the related impact on the current audit plan.

Revenue Management and Operating Procedures Should be Strengthened to Accommodate Growth in Patent Activities

Existing revenue management procedures do not adequately support the University's expansion in patent technology. Between 1992 and 1995, the number of technology licenses generating royalties increased from 90 to 150. While the University hired two additional staff members to support this activity, revenue monitoring efforts were not adjusted. The University's royalty income has increased over the years, reaching approximately $1.5 million during fiscal year 1997. However, additional oversight would ensure that income associated with research activities is maximized.

The University does not exercise certain monitoring options included in its standard technology license agreements or authorized by The University of Texas System. Royalty income is earned when research conducted by faculty or students is subsequently patented by the University and licensed to corporate or government entities. However, the University does not audit licensee records to ensure it receives the agreed-upon share of income. Additionally, the University does not monitor its share of royalties from inventions that are legally released to the faculty member or student and patented independently.

Opportunities Exist to Improve Monitoring and Administration of Renovation Projects

The University's Physical Plant Department should enhance inspection, training, and cash

management procedures to ensure the quality of work related to renovation projects and improve security of assets. Methods for maintaining data on problems with contractors, materials, or equipment are not consistent. As a result, key information on a project's progress may not be captured in case of contract dispute or litigation. In addition, cashier's checks received to secure contract bids are not adequately tracked or secured. Further, no guidelines exists related to ongoing training for Physical Plant Department employees involved in project management, including architects, engineers, and inspectors.

While major renovations are managed by The University of Texas System, the University is responsible for routine maintenance and renovation projects worth up to $600,000. During fiscal year 1997 there were 729 such projects planned or in progress, with contract projects totaling $11.6 million.

University Pioneers Integrated Planning and Budgeting System for Colleges

The University has developed and implemented an innovative system for managing academic performance and resources. Initiated during the 1994 academic year, the COMPACT 2000 system links budget and planning information to monitor the effectiveness of the University's colleges. Under the new system, individual colleges enter formal contracts or "compacts" with the Provost concerning goals and underlying pledges for financial, personnel, and capital resources. The University's 14 schools and colleges have a combined annual budget of $415 million.

Executive Summary

Summary of Management's Response

Management generally agrees with the findings and recommendations contained in this report. Responsibility for corrective action has already been assigned and initiated with respect to several findings.

Summary of Audit Scope and Objective

The objective of this audit was to conduct a high-level assessment of key management control systems within The University of Texas at Austin to identify opportunities for improvement and determine established strengths. The scope of work was limited in consideration of recent, ongoing, and planned audits at the University.

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Some Campus Safety Risks Continue to Exist Despite Management's Efforts

Recurring noncompliance with laboratory research policies poses a significant risk to the safety of students and employees on campus. While management has strengthened safety procedures governing laboratories, certain faculty members have repeatedly violated those procedures without penalty. The University is challenged in its efforts to address safety concerns without constricting academic research activities. In addition, the University should expand long-term plans for building renovations, since most of its facilities were constructed decades before modern safety standards were established. The University has initiated physical renovations for selected labs and has targeted other safety upgrades within the deferred maintenance plan. However, a comprehensive risk assessment of some key sites on campus has not been completed.

Concerns regarding campus environmental health and safety were heightened after a six-alarm chemical fire in October 1996 at Welch Hall, a laboratory research building on campus. Since that time, the University has:

- Planned and initiated $30.2 million in renovations to Welch Hall
- Issued a revised safety manual in November 1996
- Established both general and research-specific safety committees
- Issued safety bulletins as committees formulate recommendations
- Initiated corrective action for seven of the eight procedural recommendations from the Austin Fire Department
- Appointed an Assistant Dean of Safety in the College of Natural Sciences

The University is a major research institution with 1,194 sites that produce hazardous waste. Therefore, consistent implementation of safety procedures and comprehensive, risk-based facility planning are primary defenses against any future hazards.

Certain Faculty Members Have Repeatedly Failed to Comply With Safety Procedures Established by University Management

Although management has systems for monitoring laboratory safety, faculty members have not been effectively held accountable for repeated violations. The University's Office of Environmental Health and Safety (Office) performs inspections of laboratories at the University. These laboratory inspections are based on criteria from state environmental laws as well as University policy. A review of the latest inspection reports from 20 laboratories on campus identified a total of 47 procedural violations. Forty percent of the labs in the sample were cited for improper storage of chemicals.

Additionally, certain faculty have repeatedly failed to correct the same violation over a period of years. University inspection reports from another sample of 23 laboratories

over four years were reviewed, revealing long-term noncompliance with University policy and, in some cases, legal statutes. At times corrective actions were noted upon reinspection, but several violations consistently reappeared. (See complete list in Appendix 2.)

Table 1

Recurring Safety Violations at Selected University Labs		
Laboratory Name and Room Number	Policy Violated	Years Communicated to Management
Biology - 021	Emergency showers and eye washes are available and unobstructed.*	1994, 1995, 1996
Experimental Science - 242	Chemical containers and labels are in good condition.	1995, 1996, 1997
Pharmacy - 4.202	Lab employees have sufficient knowledge regarding work place hazards as required by the Texas Hazard Communication Act.	1996, 1997
Patterson - 504	Lab employees have sufficient knowledge regarding work place hazards as required by the Texas Hazard Communication Act.	1996, 1997
Welch - 4.154	Compressed gas cylinders are secured and safety caps are in place if not in use.	1996, 1997 (February/June)
Welch - 4.148	Chemicals are stored appropriately (for example, by hazard class), hazardous chemicals are stored in low cabinets or shelves, and containers are in good condition.	1995, 1997 (February/June)
Welch - 5.132	Secondary containers, other than ones for immediate use, are labeled with the identity of the contents.	1996, 1997 (March/June)
Welch - 3.404	Chemicals are stored appropriately (for example, by hazard class), hazardous chemicals are stored in low cabinets or shelves, and containers are in good condition.	1996, 1997
* Policy appeared on previous inspection forms, but not on the 1997 inspection form.		

Source: Office of Environmental Health and Safety, The University of Texas at Austin

During recent months, management resolved some obstacles that hindered compliance with certain safety procedures. Lab policy violations that require physical modifications, such as installation of emergency showers, used to be reported to the dean of the applicable college. However, deans do not have the ability to direct the scheduling of physical plant projects or to secure required resources. As of August 1997, structural deficiencies within labs are reported to the Vice President for Business Affairs, who has the authority to approve renovations.

Additional factors contributing to the continued noncompliance with safety policies have not been resolved. Some of these weaknesses were previously identified by external oversight entities such as The University of Texas System's Internal Audit Department and the Texas Department of Health:

- **Lack of Accountability** - The safety violations are communicated to executive management; however, faculty members have repeatedly failed to correct the situations without any discernable consequence. The inspection results have traditionally been communicated to the faculty member, department chair, dean, and/or Vice President for Research.

- **Unimplemented or Unmonitored Safety Requirements** - In November 1996, the University issued a policy requiring each department to appoint Chemical Hygiene Officers responsible for safety issues. Also, each faculty member was assigned the duty of assessing his or her own laboratory each semester and forwarding this information to the Office of Environmental Health and Safety. Currently, the Office has no records of named Chemical Hygiene Officers, and of the hundreds of laboratories on campus, only three self-assessments have been received.

- **Reluctance to Exercise Available Sanctions** - Despite numerous violations at the same labs, the Office of Environmental Health and Safety has never shut down a laboratory in accordance with its authority. University policy allows the Office of Environmental Health and Safety to "undertake necessary enforcement actions to ensure full compliance with all institutional safety policies, up to and including independent authority to shut down laboratories for violations of these policies."

- **Inability to Track Safety Training of Employees and Students** - The University has no system for identifying (1) students or employees who require safety training and (2) specific requirements not met per individual. Since 1994, it has been recommended that the University develop a comprehensive system to track safety training, particularly training that is mandated by law. The Texas Department of Health has also raised the issue in discussions with University management.

Recommendations:

- Management should hold faculty and students responsible for laboratory conditions. Implement available sanctions for chronic violators of safety policies, including placing holds on grants, issuing negative performance reviews, closing laboratory facilities, suspending violators from laboratories, and/or formally censuring violators.

- The Office of Environmental Health and Safety should analyze the results of inspections to identify isolated problems and University-wide trends. The Office should send summarized statistics on violators to administrative as well

as academic management. Statistics should include the faculty member's name, lab, and number of times/dates the policy was violated.

- The University should ensure that its safety training system includes monitoring to identify students, lab assistants, and employees who do not have training required by University policy or state statutes.

Management's Response:

The fifth bullet point on page 5 says that corrective action was initiated for seven of the eight recommendations from the Austin Fire Department. The University actually addressed all of the recommendations but modified the approach for the final recommendation. The Fire Department had asked that The University provide for 24-hour spill response and suggested that The University consider entering into a "standby" contract with a single commercial service provider. After review, The University determined that the more appropriate approach would be to give the Director of the Office of Environmental Health and Safety (OEHS) emergency contracting authority to engage spill responders as needed to control and clean up chemical spills on campus. The Austin Fire Department is the first responder for both fires and hazardous chemical spills on campus. The emergency contracting authority provides supplemental resources available for the clean up phase after initial spill response. This approach gives The University access to a wider variety of spill responders with different specialized equipment and personnel to assure prompt and effective remediation of chemical spills on campus.

The University currently is finalizing its search for a Director of OEHS. The University anticipates having the Director on board by April 1, 1998. The new Director will coordinate the implementation of corrective actions identified in this report and ensure that all safety related issues and policies are addressed continuously and monitored.

The University will review each report of repeated laboratory safety violations to enhance compliance with policy. OEHS will bring such violations to the attention of the academic supervisor, the Dean, and the Vice President for Research with a written request that the violations be reviewed and corrective action taken. These academic officers will use available sanctions that may be appropriate for each case. In addition, the Director of OEHS will seek advice on addressing such violations from the Environmental Health and Safety Committee. The laboratory listings on pages 6 and 41 of the report have been referred to both the Dean of the College of Natural Sciences and the Dean of the College of Pharmacy for review and appropriate corrective action.

The OEHS will analyze the results of inspections and provide quarterly reports to administrative and academic management. As noted in the auditor's report, inspection reports have been provided to several administrative and academic offices of The University. These quarterly analyses will assist those who receive the reports in addressing needs for corrective action.

The University has assigned responsibility for identifying safety training needs to each department. The OEHS distributes a Safety Bulletin on Training Requirements and the Hazard Communication Act Site-Specific Training Record to all departments. The OEHS Laboratory Training guide is distributed in training classes and will be distributed to all departments. All of these items are available on the World Wide Web at http:\\www.utexas.edu\business\OEHS\.

Beginning in January of 1998, The University will send an annual written reminder to supervisors that they must monitor the training needs and the training received by individuals working under their supervision. In addition, supervisors will be advised to discuss during annual performance evaluations the completion of required safety training and note compliance on the evaluation.

Staff in Administrative Computing Services are modifying the TXCLASS computer system to provide a training history for employees. Staff in the OEHS currently are entering employee training data into this system.
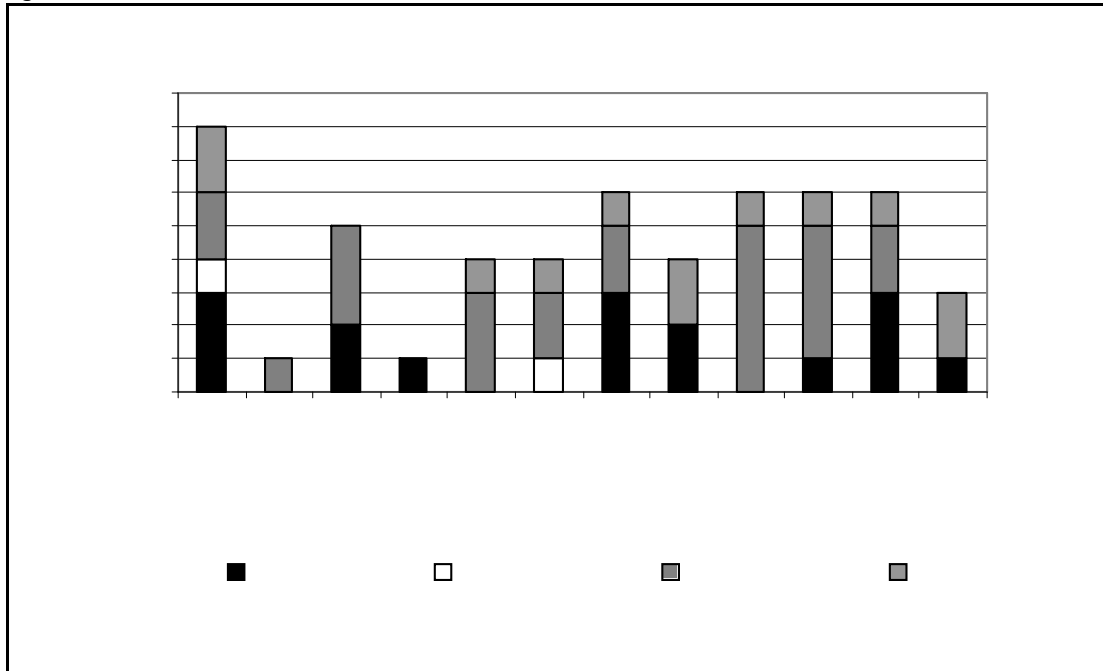
Section 1-B:

Dynamic Research Environment Brings Inherent Risks and Challenges to University Administration

The University's struggle to effectively manage safety risks is common among research institutions. The challenge is striking a balance between safety regulations and scientific freedom and achievement. The University has over 900 labs and conducts research in diverse fields such as pharmacy, engineering, and biology. The University strives to maintain a progressive research environment in order to attract and retain leading faculty. However, these goals must not override the basic safety of faculty and students.

Potentially hazardous situations are prone to arise at research institutions, underscoring the need for consistent implementation of safety procedures. Faculty, employees, and students could be exposed to various materials and chemical spills. Exposures can range from nitric acid or biological waste to mercury. To address these risks, the University has taken measures such as establishing lab policies, conducting inspections, providing spill kits for each lab, and using a spill clean-up and response team. Figure 1 identifies the number of spills that the University's Office of Environmental Health and Safety responded to during fiscal year 1997; the Office responded to an average of 4.5 spills per month.

Figure 1

Source: Office of Environmental Health and Safety, University of Texas at Austin

Section 1-C:

The University Should Complete Its Risk Assessment and Expand Building Safety Renovation Plans

Risk assessment and planning are not complete for renovations of certain research buildings and residence halls. Although management has scheduled and implemented selected safety renovations, some key areas of campus have not been fully evaluated or addressed in existing plans. Most of the 150 buildings on campus were constructed over 20 years ago. Therefore, many buildings do not have modern safety features such as sprinkler systems. Sufficiently upgrading safety features for University facilities is a long-term endeavor that requires comprehensive risk assessments, planning, and monitoring. In addition to structural issues, recurring noncompliance with building safety procedures was identified in a few cases.

The need for extensive, coordinated planning is underscored by the fact that responsibility for facility safety improvements is shared by the Physical Plant Division and the Division of Housing and Food Services. While both have developed and implemented strategies for addressing weaknesses, specific gaps in planning and risk assessment exist.

An assessment of the structural safety of research buildings, which carry specific risks inherent to equipment and materials or chemicals used, has not been completed. Although current plans include multi-million dollar renovations for the Welch Hall chemistry building and the Experimental Science building, there is no documented

assessment for upgrading the other 14 buildings on campus with research labs. Potential modifications have not been identified, and long-term renovations have not been scheduled. The Physical Plant Division provides oversight for most of the main campus as well as three research campuses. Physical Plant engineers evaluate structural safety weaknesses and detail the timing and funding for related projects in both the deferred maintenance plan and the capital improvement plan.

The Division of Housing and Food Services (Division) has also initiated but not completed plans for upgrading safety features in residence halls and auxiliary operations. In a 1995 memorandum, the Division outlined Phase I of its objective to install fire alarms, but plans for Phase II involving the installation of sprinklers systems have not been developed. There are 11 dormitories on campus without sprinkler systems. Unidentified requirements for Phase II include prioritizing projects, establishing deadlines, and identifying funding needs. The University Fire Marshall will conduct a fire safety assessment of residence halls to assist the Division with additional renovation planning. The Division has accomplished the primary objectives of Phase I through the installation of modern fire alarm and detection systems in several dorms. Other positive steps include periodic fire drills and compliance inspections.

Recurring noncompliance with University policy and National Fire Protection Association codes was also noted in some instances. These standards address building safety procedures as well as structural requirements. Although universities are not required to comply with national safety codes, the University's Fire Marshall is currently revising University building codes to incorporate certain national standards. Nonetheless, for years the Fire Marshall has conducted inspections and communicated departures from building safety standards that have not yet been resolved. (See Table 2 for examples of recurring building inspection violations.)

Table 2

Examples of Recurring Building Inspection Violations		
Building	**Area of Concern**	**Years Communicated to Management**
Beauford H. Jester Center (high-rise dormitory for 3,000 students)	(1) The complex lacks a fire sprinkler system. (2) Resident room doors that open on an interior corridor are not closing.	1994, 1995
Robert L. Moore Hall (high-rise classroom building)	Corridors and other areas are being used for storage of furniture and equipment.	1993, 1995, 1997
Burdine Hall (class room building)	An office was found to have excessive amounts of material in storage. In the event of a fire, the materials used to construct the walls and ceilings would not be able to contain the amount of heat generated by the amount of combustibles stored in the room.	1989, 1997

Source: University Fire Marshall inspections

Recommendations:

• The University should complete its risk assessment and its long-term implementation plans for renovating campus facilities, particularly with respect to research buildings and residence halls. The risk assessments should include documentation of criteria used for prioritization of projects. Amendments to existing plans should contain short- and long-term deadlines for implementation, identify funding requirements, and be monitored by executive management.

• The Fire Marshall's Office should analyze the results of inspections to identify the trends in violations of building safety procedures. Summarized statistics relating to recurring noncompliance should be reported to executive management.

Management's Response:

The University has a long-term implementation plan to address fire safety in research buildings and residence halls. As noted in the auditors' report, The University is not required to comply with national safety codes. The University, however, has taken a proactive position to ensure the safety of students, faculty, and staff. All new University buildings, and buildings undergoing major remodeling, will have fire alarm systems and sprinkler systems installed (Student Services, Molecular Biology, UIL, Gregory, Law School addition, and Gebauer currently are under construction or in the design stage). In addition, The University is reviewing its building inspection program to determine how information from the ongoing inspections can be used more effectively in the risk assessment and long-term planning process.

A phased plan has been in effect for the past ten years to install fire alarm systems in University buildings (about $3,000,000 has been expended for this purpose). This year, $250,000 is budgeted for this program.

The Division of Housing and Food Service (H&F) also has a long range plan that includes state-of-the-art alarm and detection systems, fire sprinkling, exit/egress management for residents, and cooperation with all authorities in evacuation and response planning. In 1995, a phased plan on a $2M, 3-year project to replace alarm and detection systems with entirely new designs in residence halls was underway. The new system, designed by University of Texas Architectural & Engineering Services, consists of smoke and heat detectors, water flow monitors, verbal and horn warning systems, state-of-the-art smart type fire detection panels, and 24-hour remote monitoring by The University of Texas Police Department.

Parts of H&F long range plan have been completed and several others are in progress. The upgrade of the fire alarm and detection systems in the Women's Co-ops and the Waller Creek Residence Halls (formerly Men's Residence Halls) is complete. The upgraded fire alarm system now also is complete in Kinsolving and the Quad area (Littlefield, Blanton, Andrews and Carothers). The design for the upgraded fire alarm system in Jester is complete. The system in Jester Food Service is in progress. The systems in Jester East and Jester West will be bid on in February 1998. The University estimates that this system will cost $1 M and take a year to a year and a half to complete. Residence Halls were among the first buildings on campus to receive these new systems. When complete they will be monitored 24 hours a day by The University of Texas Police Department, Physical Plant, and Residence Life staff at the Jester Desk.

In addition to the upgrade of the fire alarm systems in these areas, a separate contract has been initiated to provide hard wired smoke detectors in each student room. The installation of these detectors is complete in the Women's Co-ops, Waller Creek Residence Halls, Kinsolving, and Jester East. Jester West currently is in progress and the Quad will be completed in the Spring of 1998.

As a part of this ongoing plan, The University Fire Marshall will perform a fire safety assessment of all residence halls. This assessment will begin in Jester Center

February 1998. The Fire Marshall will be assessing and making recommendations for improvements in egress systems and he will be identifying and making recommendations for fire protection in hazardous areas. He will also be setting priorities and working with our staff to establish a comprehensive installation schedule for the recommended improvements.

The University remains committed to fire and life safety in the residence halls. The staff of the Division of Housing and Food Service works closely with the Fire Marshall's Office in planning and implementing fire drills, in training of staff, and in assisting with inspections.

Additional Safety Measures (excerpt from Fire Safety Summary dated 2/11/97):

- *Fire drills currently are being planned for a number of campus buildings.*

- *A Safety Awareness Week is under consideration for the fall semester each year.*

- *Fire safety training will be enhanced by OEHS, including use of fire extinguishers.*

In addition to measures accomplished, The University's Director of Physical Plant, Director of OEHS, and Director of H&F also will develop a risk assessment. This information will be useful for administration in preparing an implementation plan in conjunction with the annual Capital Improvement Plan.

Effective January 1, 1998, the Fire Marshall will prepare a calendar-year annual report for executive management that will include an analysis of the results of fire inspections and identify trends relevant to fire safety on campus.

In terms of human safety, The University has an excellent record over the past 100 plus years of its history.

Section 2:

Unissued Audit Reports and Inadequate Communication With the Internal Audit Committee Inhibit Timely Oversight of University Operations

The inability to complete planned audits, particularly prolonged delays in issuing final audit reports, limits the flow of information required for effective oversight. Oversight responsibility is shared by University management, the Internal Audit Committee, The University of Texas System Board of Regents, the Legislature, and other external entities. Furthermore, incomplete communications to the Internal Audit Committee inhibit the Committee's ability to make informed decisions about allocating audit resources. The University has an annual expenditure budget of $884 million, encompassing operations, research, construction, and auxiliary enterprises. Management relies on the Office of Internal Audits (Internal Audit) to fulfill its charter

to provide "objective analyses, appraisals and recommendations concerning activities." Additionally, the format and content of status reports to the Internal Audit Committee do not clearly communicate the resources expended for audits carried over from previous years or the related impact on the current audit plan. Internal Audit turnover is one contributing factor for decreased productivity, and University management recently increased Internal Audit's salary schedule in an effort to reduce this trend. However, factors such as inadequate administrative systems within Internal Audit also affect productivity.

Section 2-A:
The Audit Plan and Other Key Internal Audit Responsibilities Have Not Been Completed

Seventeen of 21 audits included in the audit plan did not have a report issued by year end. Audit plans are based on a comprehensive risk assessment of University operations each year; therefore, failure to complete a majority of the audits in the plan may leave high-risk areas unaddressed. While the majority of Internal Audit staff members' hours were charged directly to audits, the availability of staff members to complete planned audits was partially impacted by routine departmental activities. For example, staff training exceeded budget by 866 hours—the extra hours accommodate for the training of several new employees. However, administrative hours exceeded budget in the amount of 1,513 hours. (Administrative hours for the Director of the Office of Internal Audits are not captured by the timekeeping system and are therefore not included in this figure.) Additionally, Internal Audit is sometimes responsible for conducting special projects that are not audit-related, such as the University's cost-savings report.

Over the past three years, the percentage of "carry-over" audits has significantly increased. (A "carry-over" audit is one that is scheduled to be completed in a given fiscal year, but not completed until the next.) As a result, audit hours are not available to address some of the critical areas identified in each successive audit plan. In fiscal year 1995, 20 percent of the audit reports issued were carry-over audits. In fiscal year 1997, four of the five audit reports issued were carry-over audits, representing 80 percent.

While turnover can contribute to decreased efficiency, it does not account for the entire decline in audit coverage at the University. Internal Audit has experienced turnover rates in the amounts of 34, 35, and 51 percent for fiscal years 1995, 1996, and 1997 respectively. Turnover impacts efficiency in terms of the time new auditors spend on training and becoming oriented with University financial and management systems. During fiscal year 1997, the vacant positions were filled, and the actual number of full-time equivalent employees (FTEs) closely matched the number of FTEs budgeted for completion of the audit plan. (See Figure 2 for more information on the number of budgeted versus actual FTEs.)

Figure 2
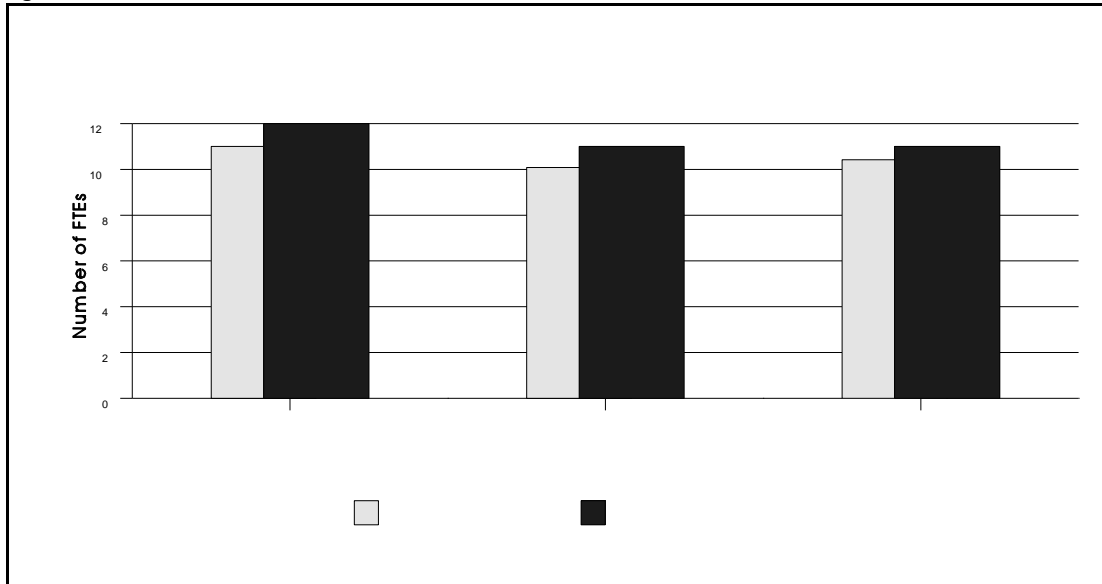
Source: Office of Internal Audits, Audit Plans for Fiscal Years 1995, 1996, and 1997
Office of Internal Audits, Staff Turnover (employment) Analysis

Delays in Issuing Reports - The decline in the number of current audit plan projects completed is in part related to delays in issuing audit reports. A sample of nine audits conducted during fiscal years 1995 through 1997 was selected to evaluate total audit time from the initiation of planning to the issuance of the report. Analysis revealed that it took an average of 15 months to complete an audit. Four of the audits in the sample had reporting periods that lasted longer than the fieldwork phase. One of the departmental audits in our sample showed that fieldwork was completed in July 1996, while the results were reported over a year later in October 1997. The fieldwork for another audit—one related to student fees—was completed in August 1996, whereas the report was issued in May 1997, a nine-month delay.

Although drafts of the audit reports are included in the packets provided to the Internal Audit Committee, delays in finalizing the report prevents a timely review of management's responses regarding the audited areas. Delays in issuing the report also inhibit the timely use of information by the Legislature and other external oversight entities. Additionally, Institute of Internal Auditors standards require reports to be issued without undue delay. During the period of draft revisions, Internal Audit often offers technical assistance to support implementation of recommendations. However, this assistance could still be provided after the report is issued.

Progress Regarding Applicable Recommendations From The University of Texas System Administration - The University's Office of Internal Audits has taken a leadership role in helping University management address some of the recommendations from the *1996 University of Texas System Action Plan to Enhance Internal Controls*. While Internal Audit's involvement is valuable, mixed progress has been achieved on the three recommendations for which it assumed responsibility:

- Internal Audit successfully developed and conducted internal control workshops for various managers and staff within the University.

- Internal Audit did not assist the majority of departments with annual control self-assessments. The University's Internal Audit Committee allocated 500 hours for this purpose, but 70 hours were actually charged. However, a pilot project was initiated targeting four of these departments.

- Internal Audit did not perform 50 scheduled audits of departments with new management during fiscal year 1997. However, some carry-over audits were completed.

Decline in Follow-Up Audits - Follow-up audits are another key segment of the audit plan that has not been adequately addressed. According to the Institute of Internal Auditors' standards, follow-up audits should be conducted to determine the status of known material findings and recommendations from previous audits. While the University sends a quarterly report to the System regarding the status of significant findings, the level of work approved by the Internal Audit Committee has not been performed. Between fiscal years 1995 and 1997, only 82 of the 730 hours budgeted for follow-up work was actually expended. Additionally, a 1995 peer review recommended the development of procedures for follow-up audits, which has not been addressed.

Recommendations:

- The Internal Auditor should formally reevaluate the current audit plan and risk assessment each quarter to determine whether or not carry-over projects are critical enough to divert time from current plan projects. Any recommended changes to the current plan should be formally approved, reported to the Internal Audit Committee at its meetings, and documented in the minutes.

- University management should identify other departments that can provide technical assistance for audit recommendations as well as non-audit special projects. Possible alternatives for providing assistance include personnel from the Office of Accounting or Business Services departments. This would allow more of the Office of Internal Audits' budget to be devoted to direct audit hours.

- Follow-up audits should be performed on a timely basis. Follow-up audit procedures should be developed and documented in accordance with the peer review recommendation.

Management's Responses:

The University agrees with the three recommendations and will implement them as outlined below. The University agrees that overall audit coverage for the last two years has been less than planned and desired. However, the audit coverage has been reasonable when considering the large amount of staff turnover, training needs of new staff, special project needs, and administrative functions associated with a change in Director and implementation of the UT System Internal Controls Action Plan. In addition, direct audit hours over the last two years have been in the range of direct audit hours in previous years. The University finds overall that audit coverage across campus over the last five years has been reasonably comprehensive of risk areas.

The University took management steps over the last two years to: (1) determine organizational and staffing needs and changes that would be necessary in the Office of Internal Audits to achieve an appropriate amount of audit coverage; (2) make the immediate audit project adjustments necessitated by changes in staff members and experience levels; and, (3) make the immediate adjustments to audit projects and use of available resources necessitated by critical projects and changes in risk evaluation that arose during the period and by the need to address at least selected projects from earlier plans that had not been completed. Substantial work had been accomplished on the majority of the audit projects identified on the two audit plans and sufficient work had been expended on special projects or projects that replaced previously scheduled projects, with the verbal approval of the President and/or his delegate, the Counsel to the President. The University agrees that the Office of Internal Audits needs to improve its procedures so that most final reports are issued more promptly. This issue is addressed below. However, The University points out that significant discussion regarding the findings and the draft reports takes place with senior management prior to the issuance of the final report. The University has determined that an important function of the Office of Internal Audits is to provide significant management information and advice during the audit process. Any significant audit findings made during the course of the field work or reporting process are reported to the Counsel to the President, the President, and the appropriate Vice President and corrective action is pursued and often implemented even before reports are issued. Such findings and the status of audits and reports also are discussed at the meetings of the Internal Audit Committee, a body advisory to the President and whose members may assist the Office of Internal Audits in communicating issues to and acquiring implementation from units that report to them.

The University's aggressive 1997 Audit Plan assumed that all vacant auditor positions would be filled during all of the fiscal year and that approximately 17,500 hours would be expended in the following audit areas: Cash; Internal Controls, Compliance, Financial; Electronic Data Processing; Other Control Areas; Federal; Unplanned Projects; Performance Reviews; and, Follow up Work. During fiscal year 1997, approximately 13,710 hours, or approximately 78% of budget, were expended toward completion of audits in these areas. In addition to discussion of Audit Plan adjustments with University officials, the status of completion of the Audit Plan was provided on a quarterly basis to the Business Affairs and Audit Committee of the Board of Regents for its review. The University agrees that these status reports can be

enhanced for clarity and such improvements are being implemented. The 1996 Audit Plan budgeted 17,540 direct audit hours. 13,385 were expended. Despite the large amount of turnover during each year and the heavy staff training needs and difficulties in asking inexperienced auditors to perform direct audit work the percentage of direct audit hours performed between 1995 and 1997 increased slightly. All audit staff positions, including the EDP (IT) positions, were filled effective August 1997. No turnover has been experienced through the end of December. 3,743.5 direct audit hours have been expended on the 1998 Audit Plan through November 30, 1997. This serves as evidence that The University expects to cover a significantly larger number of direct audit hours this year than in the past two years.

The main factor impacting the ability of the Office of Internal Audits to complete the Audit Plan was the high number of unfilled vacancies that resulted from the high demand for experienced audit and computer specialists in the Austin area. This high turnover diverted resources of the Office of Internal Audits otherwise available for direct audit hours to recruitment, interviewing, and training activities. The majority of new hires have been less-experienced staff who require additional training in auditing, as well as a thorough introduction to the complexity of internal auditing in the environment of The University. The overall level of experience of the audit staff has a direct impact on the types of audits that can be undertaken effectively and the degree to which these audits can be accomplished within existing budgets. The FTE information on page 15 does not reflect the number of employee changes and FTE fluctuations during each year that had a significant impact on work. The University finds that the increase in hours expended for training over that budgeted was reasonable. The Director has been asked to analyze the increase in hours over budget expended for administrative activities and to take steps to keep administrative hour budget changes to an absolute minimum.

During the past two fiscal years, The Office of Internal Audits made considerable progress in restructuring the Office in order to attract and retain the most capable audit staff possible. Actions taken include: (1) restructuring of salary levels for managers and staff to be more competitive with opportunities outside the Office. A plan was developed during spring of 1997 but could not be funded at that time due to overall University budget priorities. A revised plan was approved and funded by the President ad interim *shortly after he took office in July of 1997; (2) funding of additional positions to develop an Auxiliary Audit Team; (3) creation of and funding of an Information Technology Audit Manager, a position that was filled in June of 1997; and, (4) funding to reclassify staff auditor positions (Auditor I and II) to lead auditor positions (Auditor III and IV) that were filled internally in fiscal year 1997. These changes, as well as the filling of vacant positions, have positioned the Office of Internal Audits to accomplish its primary goal of completing the annual audit plan.*

The audit report review process will be modified to shorten the overall audit process time and to facilitate the communication of audit issues to entities outside The University. The Director of the Office of Internal Audits has been involved directly in extensive editing and review of final audit reports. He is reviewing the use of his time, priorities, and ability to delegate some of these and other functions to office administrators and senior staff. In addition, time guidelines will be established for

review and comment by auditees, periods of advice and assistance by the Office of Internal Audits, receipt of management responses, and review of final drafts by senior management and members of the Internal Audit Committee. Such guidelines, of course, must take into account the nature of the issues raised in each project. For example, the student fees audit referred to on page 16 involved every college and school of The University as well as several central administrative offices. The findings were discussed extensively with the Provost and his staff and staff of the Development Office. Follow-up work and clarification, prior to the receipt of final management responses, were requested by the Provost, the President, and other Internal Audit Committee members. Fieldwork on the audit actually reopened although not documented under the former method of recordkeeping in the Office. The students fees audit was discussed in detail by the Internal Audit Committee at its meetings of June 24, 1996, September 20, 1996, December 2, 1996, and February 3, 1997. Comprehensive major audits of this type are considered very critical areas by The University and the Office of Internal Audits had been approved by the President or Counsel to the President to move additional resources to such audits from less critical areas of the annual Audit Plan.

The University agrees that follow up audits are integral to ensuring the effectiveness of the internal audit function. The progress on implementation of all significant audit findings is reviewed by The University and The University of Texas System on a quarterly basis. Follow up audits on all projects completed since fiscal year 1995 through 1997 began during the fall of 1997 and are scheduled for completion in February of 1998. The follow up audit procedure is in draft form and will be completed by February 1, 1998. Developing for the Office of Internal Audits a plan for regularly scheduled follow up audits was an issue identified by the Director when he assumed his position in 1995. This issue was discussed during the Office's September 1995 peer review and was included in the eight recommendations of the peer review committee. The Director of the Office of Internal Audits and the President prioritized the development and implementation of plans to address four other peer review recommendations above the development of the follow up audit program. These four peer review recommendations have been implemented and the remaining three are in the process of being completed along with the follow up program.

The University of Texas System Action Plan to Enhance Internal Controls is discussed on page 16. The three items from that Plan for which the Office of Internal Audits took the lead are reviewed. While the internal controls workshops and training were completed successfully, the Office of Internal Audits spent only 70 of 500 hours budgeted to assist departments in performing control self-assessments. The President approved the change in hours for this item since the auditing and University experience level of auditors involved in such an activity needed to be high and the Director and senior auditors were needed for more critical audits as well as development of some of the staffing and administrative planning activities discussed above. The Director was asked to develop a plan to address this activity and he proposed a pilot project to test the control self-assessment program before it was expanded throughout the campus. The pilot project currently is underway. Reference also is made to the fact that the fifty new unit head audits scheduled for the 1997 Audit Plan were not performed. Again, the President and the Counsel to the President

approved the hours budgeted for those audits instead being expended on completing the carryover new unit head audits that had not been finished from the 1996 Audit Plan and other higher risk projects. 24 new unit head audits from the 1996 Audit Plan were completed in the 1997 fiscal year. The new unit head audits from the 1997 Audit Plan were started in the fall of 1997 and are being completed along with the new unit head audits scheduled for the 1998 Audit Plan.

The Director of the Office of Internal Audits will reevaluate formally the 1998 Audit Plan and risk assessment on a quarterly basis to determine whether carry over projects or new projects that may arise in 1998 are critical enough to divert time from projects listed in the current Plan. Changes to the Plan will be submitted in writing for formal approval by the President or his delegate, the Counsel to the President. All changes will be reported formally to the Internal Audit Committee in the meeting following the changes and recorded in the minutes. The ability of the Office of Internal Audits to complete its 1998 Internal Audit Plan during this fiscal year was discussed at the December 12, 1997, Internal Audit Committee meeting. The Director is evaluating the ability of the department to complete all projects on the Audit Plan and will submit any proposed changes to the Counsel to the President by January 20, 1998.

The University will work with the Director of the Office of Internal Audits to assign to other departments any requests for nonaudit special projects or extensive technical assistance that will impact inappropriately the ability of the Office to devote sufficient audit hours to the annual Audit Plan. Such action was taken by the Counsel to the President three times from 1995 to 1997.

Section 2-B:
The Office of Internal Audits Should Improve Communications With the Internal Audit Committee

The content and format of the Office of Internal Audits' reports to the Internal Audit Committee should be adjusted to more accurately reflect the allocation of audit resources and the associated impact on the audit plan. The Internal Audit Committee relies on these reports to evaluate risk and direct appropriate audit resources for oversight. The following inconsistencies in information provided to the Internal Audit Committee were noted:

- Two audits identified in the approved audit plans were merged with other audits; there was no evidence that the impact on scope or hours was approved.

- Two planned audits and three special audits were initiated but not completed in fiscal year 1997. These audits were not carried forward to the fiscal year 1998 audit plan, and the audit plan did not reflect specific hours required for their completion.

- Status reports in the Internal Audit Committee packets reflect hours spent in the current year for a particular audit as opposed to cumulative hours spent over years for the same audit.

- Audits listed as "in progress" are not carried forward to future status reports even though an audit report was never issued.

- The status of unimplemented 1995 internal audit peer review recommendations have not been formally communicated to the Internal Audit Committee. Recommendations for developing procedures for follow-up audits, conducting a self-assessment, and establishing an engagement control checklist have not yet been implemented.

Recommendation:

- All deviations from the original audit plan should be formally approved, reported to the Internal Audit Committee at its meetings, and documented in the minutes.

- Each Internal Audit Committee status report should reflect the percentage of the audit plan completed and compare budgeted to actual hours for all audits.

- Peer review recommendations should be reviewed for implementation and the status of any recommendations not implemented should be communicated to the Internal Audit Committee.

Management's Response:

The University agrees that communications with the Internal Audit Committee can be enhanced and will do so as outlined below. The Internal Audit Committee is an important advisory group and the information that it receives should be as clear and helpful as possible.

The Bylaws of the Internal Audit Committee provide that it will give general oversight in an advisory capacity. The Committee reviews findings, recommendations, and corrective actions completed or in progress. It may facilitate the implementation of corrective action and may recommend appropriate administrative action to the President if corrective action has not been taken. The Bylaws also provide that in preparing the annual Audit Plan the Director of the Office of Internal Audits will consult with the Committee to seek its advice on the content. The annual Audit Plan is approved in writing by the President. Modifications to the Audit Plan during the year are discussed and agreed to verbally by the President and/or the Counsel to the President when the Director of the Office of Internal Audits determines they need to be made. The Internal Audit Committee has been advised of significant changes and of special projects being undertaken. In addition, the Internal Audit Committee is asked for advice on significant issues that impact the Plan. The Committee meets every two months and receives from the Director summaries of audit reports, updates on special

projects, the status of the implementation of audit recommendations, and other information. These meetings also provide an opportunity for Committee members to share with the Director information affecting ongoing or future projects, thereby maximizing the value of the internal auditing function at The University. Beginning immediately, the Director will submit proposed modifications to the Audit Plan in writing to the Counsel to the President or President and approvals will be documented in writing. Such modifications will be reported to the Internal Audit Committee at each meeting and included in the meeting minutes. The materials for the Internal Audit Committee meetings will include the status of all audits and cumulative hours spent on each project. Annual Audit Plans will include specific hours needed for completion of any audit carried forward from the previous fiscal year. A new electronic office management system that The University allocated money to the Office of Internal Audits to purchase last summer provides the ability to report more comprehensive information. The new agenda and reporting format will be used at the next Internal Audit Committee meeting.

The University would like to address the items identified on page 21 as inconsistencies in information provided to the Internal Audit Committee. The first bullet on page 21 says that two audits identified in the approved Audit Plans were merged with other audits with no evidence that the impact on scope or hours was approved. As discussed above, the Director will put all future requests for Audit Plan modifications in writing. The two audits referred to are the Petty Cash audit that had been in the Cash section of the 1996 Audit Plan and the Office Managers in *Define audit that was a spot check audit in the 1997 Audit Plan. The Petty Cash audit was included in both the 1996 and 1997 Audit Plans. The work was completed substantially in fiscal year 1997 and the preliminary findings had been discussed with the Internal Audit Committee. The audit report was issued in the fall of 1997. The spot check audit on Office Managers in *Define was not performed during fiscal year 1997. It was moved from the spot check audit to the EDP (Information Technology) part of the 1998 Audit Plan under *Define/OASYS Electronic Office/Document Routing. The Internal Audit Committee was informed of both of these changes when proposed Audit Plans were discussed. The second bullet point on page 21 says that two planned audits and three special audits initiated but not completed in fiscal year 1997 were not carried forward to the fiscal year 1998 Audit Plan reflecting hours required for their completion. Three of these audits were special projects pursued in 1997 using hours budgeted in the Audit Plan for Special Projects. Most of the work on them was performed in 1997 but the 1998 Audit Plan Special Project hours were budgeted with completion of these special projects in mind. 2,400 audit hours were expended during fiscal year 1997 on the planned Annual Financial Report Areas. The 1998 Audit Plan budgeted 1,200 hours for this area with the plan to use 200 for the carryover work. The majority of the planned Consultant's Expenditures audit was completed in 1997 and a very small number of hours would be used in the 1998 fiscal year for completion. The third bullet point on page 22 refers to audits listed on the Internal Audit Committee agenda as "in progress" at one meeting but not included on the agenda at the next meeting. A review of "in progress" audit listings has shown that none have been dropped. The University agrees that it would be useful to be clear at each meeting which audits remain in progress. A clear list will be included with each agenda and support information packet.

The status of the 1995 peer review recommendations was discussed in The University's response to section 2-A, above. Several of these had been discussed from time to time with the Internal Audit Committee. The status of each was reported formally at the December 12, 1997, Committee meeting.

Section 2-C:
The Office of Internal Audits Lacks Certain Tools Necessary for Monitoring Effectiveness

The Office of Internal Audits does not have some key management tools that would be useful for monitoring resources and evaluating the effectiveness of its activities. Internal Audit has not established performance measures or updated its goals and objectives, which are instrumental to both self-assessment and oversight by the Internal Audit Committee. Examples of performance measures related to the audit plan include the percentage of the audit plan completed, the number of projects carried-over, and the number of days between completion of fieldwork and release of the audit report. Other relevant factors have impact and should be monitored—even though they are not necessarily controlled by Internal Audit—such as the number of auditors with certifications and staff turnover.

Additionally, performance evaluations have not been performed in accordance with University policy. Six out of 15 Internal Audit personnel, including the Director, had not received performance evaluations in the past year. Evaluations are critical to give feedback on quality of work performed, document areas for improvement, remove uncertainties regarding responsibilities and duties, and provide a record of an individual's professional growth.

Another tool useful for directing Internal Audit's activities is the office policies and procedures manual. However, Internal Audit's current manual contains several audit and administrative procedures that are no longer applicable. The manual reflects procedures for reviewing report drafts that are no longer used. Stricter requirements for evaluating new employees at one-, three-, and six-month intervals are not reflected in the existing manual. Also, the Internal Audit Committee membership list and organizational charts are outdated. An updated office manual is critical to provide guidance to employees, especially to new auditors hired in fiscal year 1997.

A recent addition to Internal Audit's management tools is the purchase of time keeping software. Previously, Internal Audit only tracked total hours per project as opposed to tracking hours for planning, fieldwork, and reporting. When the new system is installed, Internal Audit will be able to analyze trends and identify where efficiencies in the audit process are needed.

Recommendation:

- The Office of Internal Audits should update its goals and objectives, which are reflected in its annual audit plan. The audit plan can also be linked to the University's strategic plan. Audits can be categorized by applicable University objectives to determine if the allocation of audit resources is in alignment with University priorities. For example, if a strategic goal is to expand technological information systems, the audit plan should reflect appropriate EDP (electronic data processing) audits to support that goal.

- Performance measures should be adopted and reported to the Internal Audit Committee in the status reports.

- Performance evaluations should be performed at a minimum annually.

- Internal Audit's policies and procedures manual should be updated to reflect current practices.

- The new time keeping system should incorporate codes for phases of the audit process, technical assistance, and major categories of administrative activities. This would provide better information for monitoring the allocation of available hours. All Internal Audit personnel, including the Director, should be required to submit time sheets for the new system.

Management's Response:

The written goals and objectives of the Office of Internal Audits have been reviewed periodically and remain appropriate and relate directly to the responsibilities of the Office of Internal Audits and its role within the mission of The University. They will be reviewed formally every year and updated as appropriate. The Office of Internal Audits has written performance measures that have been reviewed periodically but, as pointed out by the Office of the State Auditor, these measures are not stated in a quantifiable manner. Completion of a majority of the annual Audit Plan has been the primary performance tool. Measurement of completion of the Audit Plan quarterly and at the end of each fiscal year probably provides the best measure of the Office's effectiveness. Based upon the audit recommendation, The University will review other measures.

The University agrees that performance evaluations should be completed at least annually. Performance evaluations now have been completed. The Director's performance is evaluated on an ongoing basis through weekly discussions about the Office and his activities.

Revision of the Office's audit manual was in process prior to the beginning of this audit. Updating the manual was a project identified by the Director and administrative hours were planned and prioritized within critical Audit Plan and

administrative activities. The revision process is nearing completion. The manual should be updated completely by February 1, 1998.

Section 3:

Revenue Management and Operating Procedures Should Be Strengthened to Accommodate Growth in Patent Activities

Existing controls and revenue management procedures do not adequately support the University's expansion in patent technology. Between 1992 and 1995, the number of technology licenses generating royalties increased from 90 to 150. While the University's Office of Technology Licensing hired two additional staff members to support this activity, revenue monitoring efforts were not adjusted. As a result, there is a potential risk that income associated with research activities is not maximized. The Office of Technology Licensing recently experienced a transition from being part of the function of the Vice Provost's Office to being a stand-alone department with its own director. This transition provides an excellent opportunity to enhance patent technology procedures.

Section 3-A:

Stricter Revenue Monitoring May Enhance Patent Technology Royalty Income

Procedures for monitoring royalty income owed to the University are not fully implemented. Royalty income is earned when research conducted by faculty or students is subsequently patented and licensed to corporate or government entities. The University's patent technology royalty income has increased over the years, totaling approximately $1.5 million in fiscal year 1997. However, additional oversight would ensure licensees are remitting the appropriate fees.

The company holding the license has self-interest as an incentive to marketing the patented product and increasing related sales, but procedures should be strengthened to account for the University's share of those sales. Currently, the University does not exercise certain monitoring procedures included in its standard technology license agreements or authorized by The University of Texas System through its "Intellectual Property Policy and Guidelines." Specifically, the University:

• Does not audit licensee records
• Does not assess penalties for late royalty payments
• Rarely requests annual reports on the licensees' sales and marketing efforts

A few years ago the Office of Technology Licensing purchased a patent management database with fiscal monitoring functions, but the database was incompatible with existing Macintosh computers. Recently the vendor offered a process for integrating the database with Macintosh equipment. The Office of Technology Licensing will be evaluating the capability of the alternate system to improve office operations.

Additionally, the University does not monitor the receipt of royalties from inventions that are legally released to the faculty member or student (researcher). If the University's Office of Technology Licensing is unable to secure a patent for a particular invention, researchers are allowed to pursue a patent on their own. Researchers must agree to the stipulation that the University will receive a percentage of any future royalties above the amount of patent expenses incurred by the individual. However, the University relies solely on the researcher to inform it of income owed to the school. Although the University has been active in patent technology since 1983, no researcher has ever reported income from patents pursued independently. According to the U.S. Patent Office database, 20 of the inventions released have been patented, and 8 are owned by corporations or government entities. The fact that a released invention has been patented is not necessarily an indication that income is owed to the University. Nonetheless, there is a possibility that such patents are earning income, and currently the University does not identify or track them.

One benchmark for evaluating royalty income levels is comparison to other higher education institutions. According to data from a national survey, the University exceeded other schools for some ratios and placed lower for other ratios. Because of the many variables affecting patent technology, survey data alone is not conclusive, but can indicate potential for improvement. The University was compared to a sample of 21 universities without medical schools who responded to all questions in the Association of University Technology Managers Licensing Survey (AUTM Survey). Only schools who responded to all the questions were considered to establish a basis for comparison.

The University had a slightly lower ratio of royalty income to research expenditures than the average of the survey sample (see Figure 3). The University's ratio was also lower than one peer that they use for comparison, the University of Illinois, Urbana, Champaign (UIUC). Under University policy, companies or "licensees" agree to reimburse the University for any patent application expenses incurred. For fiscal years 1992 through 1995, the University's average royalty income (including reimbursements) was $976,939. This is approximately 34 percent less than the averages for the sample of survey participants and 36 percent less than the UICU's, which were $1,485,585 and $1,527,631 respectively. Note that The University of Texas at Austin, as well as other universities, sometimes accepts equity in companies in lieu of royalties.

Figure 3
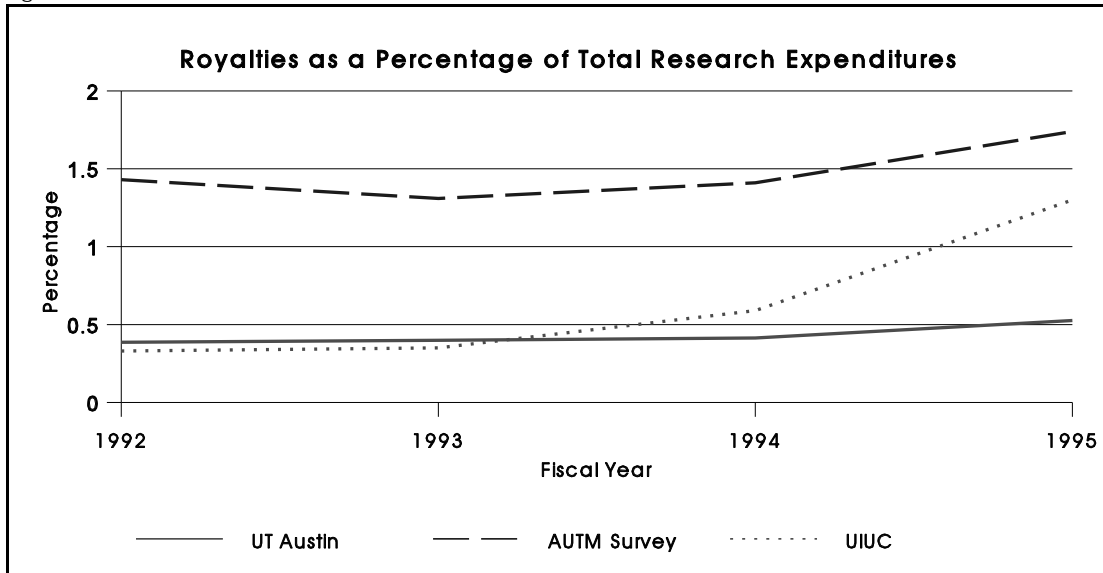
Royalties as a Percentage of Total Research Expenditures

Source: Association of University Technology Managers Licensing Survey, Office of Technology
Licensing and Intellectual Property, University of Texas at Austin

The survey also revealed areas where the University's performance exceeded most of
the other schools. For example, the University's royalty income exceeded other
schools in one of the five years reviewed, ranking in the top 35 percent of all
institutions in the survey for fiscal year 1995. In addition, the University filed more
patents and had a greater number of licenses and options generating royalties than both
the sample of survey respondents and the peer university. (See Figure 4 for more
information on licenses and options that generate royalties.) However, it is not
necessarily true that a higher number of patents should result in higher income. Delays
in realizing income can occur because (1) it may take several years for the patent owner
to make a commercially acceptable product and (2) the product could require federal
approval.

While the University cannot predict the number of patents that will be generated or the
related revenues, it can apply more stringent procedures to ensure it receives the royalty
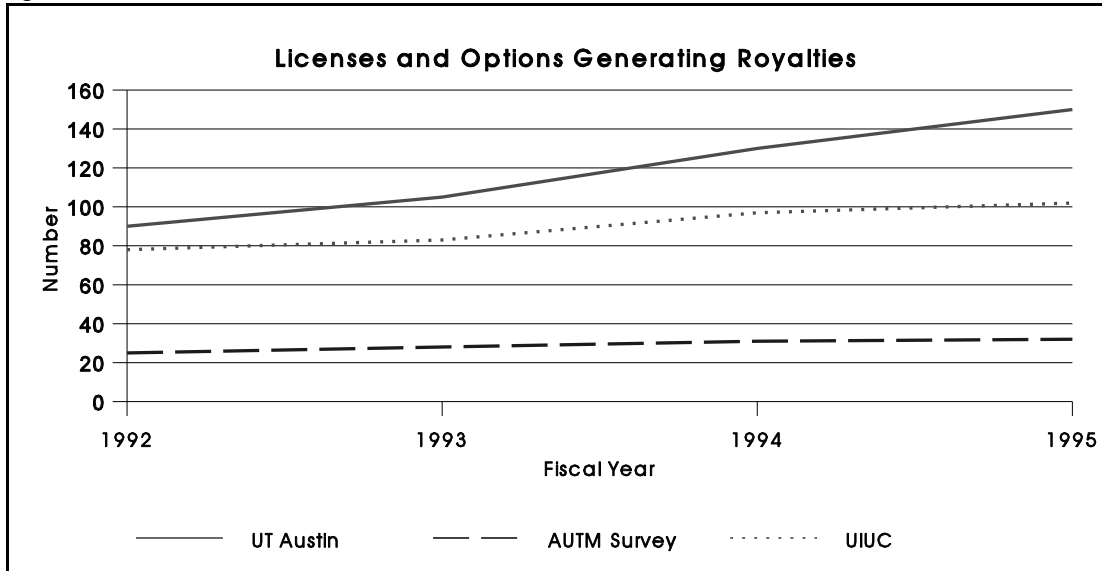income it is owed.

Figure 4

Source: Association of University Technology Managers Licensing Survey, Office of Technology
Licensing and Intellectual Property, University of Texas at Austin

Recommendations:

• The University should exercise revenue monitoring procedures such as
assessing late payment penalties; periodically conducting audits; and
monitoring sales, marketing, and financial reports of licensees. Criteria should
be developed to guide appropriate implementation of these procedures for
selected licensees.

• The University should implement procedures for tracking inventions released
to faculty and graduate students to ensure receipt of potential royalty payments.
Inventions released can be compared to the U.S. Patent Office database to
identify potential income owed to the University by faculty and students.

Management's Response:

*The University agrees with the recommendations for procedures to enhance revenue
monitoring and is pursuing implementation of them. The University appreciates the
review by the Office of the State Auditor of the policies and procedures of the Office of
Technology Licensing and Intellectual Property (OTL). OTL was established as a
separate department effective September 1, 1997, as the culmination of a plan
developed over the years by the Vice Provost who initiated and developed the program
on a part-time basis with the mandate to operate it on a self-supporting basis. This
transition was discussed with the Office of the State Auditor during the initial visit to
campus as areas to audit were being selected. The University advised the Office of the
State Auditor that it would welcome advice regarding the administrative transition and*

related policies and procedures to enhance operations of the program as it became a new department with a full-time Director and regular budget and resources.

The mission of OTL is to facilitate the transfer of technology and expertise developed at The University to the private sector for commercialization and public benefit. OTL: (1) is a resource to faculty, staff, and student researchers by providing information and guidance in protecting intellectual property as it is developed at The University; (2) stimulates and evaluates invention disclosures by University inventors and creators; (3) markets and licenses those inventions to existing private industries for further development and commercialization; (4) assists in the creation of new business opportunities that will utilize technologies developed at The University as their core idea, helping to secure financing and other resources that will guide the company as the technology is developed further for commercialization; and, (5) serves as a resource to private industry looking for expertise that exists at The University to answer industry questions and to solve technical problems. The University hired its first full-time technology licensing specialist in 1991. The goal was to grow a program that was self-supporting and that could add the appropriate number of staff and other resources over time to provide the full level of service desired for The University. Royalty income generation has been a primary goal but balanced by the need to acquire research funding and to develop strong relationships with the private sector. A second full-time technology licensing specialist was hired in mid-1995 and the third in mid-1996. The Vice Provost's recommendation in spring of 1997 to make the program a separate department effective with the 1997 - 1998 academic year was approved by the President and excellent space was provided for OTL in the MCC Building. The senior licensing professional was promoted to Director with the understanding that she and her staff would continue to achieve programmatic goals and develop the additional office policies and procedures to run OTL with maximum effectiveness.

The University's standard license and option agreements were changed effective December 19, 1997, to include the assessment of late payment penalties. This will assure that such fees are a point of negotiation for all licenses and options. The licensing professional in OTL handling a given license has a working relationship with the licensee company and has discussions periodically about company activities. Even though such information is acquired on an ongoing basis, the standard license and option agreements also were modified effective December 19 to provide that licensees routinely send written annual marketing and financial reports. The recommendation to exercise The University's currently established contractual authority to conduct periodic audits of licensees that pay royalties is being reviewed. The University previously has not chosen to have an audit conducted due to limited resources but sees the benefit of doing so under certain circumstances. Recent OTL research has found a group that specializes in advising on field audits and compliance programs for licensees. OTL has asked for more information on this group's services. Using this information and assistance within The University, OTL will develop criteria and procedures to implement periodic audits of licensees. These procedures and criteria should be developed by May 1, 1998. The OTL also will send in August of each year a reminder letter to the faculty and students to whom inventions have been released about their obligation to report annually if income is due The University.

Effective January 1, 1998, all new release letters will include a requirement that The University be informed by September 1 of each year if the released invention is being patented or formally registered as a copyright and of any change in address of the inventor/creator. In addition, a select sample of released inventions will be cross indexed against the U.S. Patent Office database each September by OTL to identify those covered by an issued patent. OTL will follow up with the inventors with identified issued patents on released inventions to determine if the inventions have been commercialized and if the appropriate September 1 reporting requirements, and any payment obligations, have been met. The University has reviewed the listing of released inventions referred to in the audit. Based upon The University's knowledge of the inventions that were released and the continuing relationship that The University has with many of the inventors, The University has no reason to believe that income due has not been paid by faculty and students, especially since each is allowed a generous amount of income before payments become due to The University. OTL is, however, following up with each inventor/creator with whom there has not been recent contact to determine the specific status of the released invention. Some cases are known. For example, one faculty member's invention went to a company several years ago for patenting and commercialization. The financial remuneration for this arrangement was discussed verbally between the faculty member and The University during that time period. When the faculty member disclosed a subsequent related invention to The University, efforts were made by The University to license the improvement to the company although without success because the commercialization of the primary invention was not being pursued. In another case, the patent is owned by the Department of Energy, the federal research sponsor, because it decided to patent when The University decided that it was not financially feasible to do so. The University receives a very small royalty stream from another invention that was released several years ago and that the inventor licensed as unpatented technology. The Office of the State Auditor referred to the revenue monitoring software purchased by The University several years ago that failed to provide promised service. It now has been improved substantially and OTL is reviewing its capabilities as well as other products to find one that can provide appropriate database and other services for The University's growing portfolio.

The University notes that its direct income generated by technology licensing activities (royalties and patent expense reimbursements received in lieu of royalties) has increased every year since the 1991-1992 base year used by the Office of the State Auditor in its survey comparisons. Income for 1996 - 1997 increased to $1,534,390.58. The University expects income to continue to increase due to the establishment of the new department, staffing and resource changes, and licenses from past years that are in more mature stages of commercialization. For example, three licensees are in clinical trials for drugs or medical devices that have excellent income potential. The Office of the State Auditor also referred to The University's practice of sometimes accepting equity in the licensee in exchange for a reduced royalty. Two of the companies in which equity was taken recently went public and The University's stock in these is valued at approximately $612,000. In its efforts to be a self-supporting program, The University also has authorized a number of licensees to pay patent prosecution legal expenses directly rather than having those funds run through The University. This accounts for lower income levels than some of the

universities in the national survey used by the Office of the State Auditor. Twenty-nine licensee companies pay such patent expenses directly on more than 190 U.S. patents and patent applications filed in The University's name. In many cases counterpart applications have been filed in foreign countries. One company alone is paying for 42 issued patents, 26 pending patent applications, and foreign filings in approximately 13 countries. (No royalties are due yet from this company that started around technology of The University, but a product is in clinical trials.) A conservative estimate of the monetary value of these patent payments made directly by licensees runs into the millions of dollars, none of which is reflected in the income figures published for The University. OTL will ask licensees making direct payments to provide financial information on such patent expenses so that the value to The University can be reflected more accurately. Finally, The University has in some cases accepted lower royalty rates or deferred royalty payments for temporary periods in return for the receipt of research funding to support the inventor's program. All of these policy issues and factors need to be taken into account when comparing technology transfer activities of universities.

Section 3-B:
The University Should Enhance Its Patent Office Procedures to Promote Efficiency and Supplement Broad System Guidelines

The University's Office of Technology Licensing has not sufficiently developed procedures for implementing the patent technology process, which could potentially cause inefficiencies or confusion. While The University and other component institutions are subject to the System's "Intellectual Property Policy and Guidelines," key procedures specific to the University are not fully documented. Tailored operating procedures are especially critical because the Office of Technology Licensing is currently involved in a reorganization.

The Office has draft procedures and a web site that briefly outline factors such as where to submit an invention proposal and the membership of the Intellectual Property Advisory Committee. However, some relevant information about the University's patent process is not included for reference by Office of Technology Licensing employees or researchers considering patent proposals. For example, neither the draft nor the web site explain why Office staff pursue patents for some proposals immediately upon receipt, whereas other proposals must first be approved by the University's Intellectual Property Advisory Committee. Also, neither describes how long Office employees will pursue a patent before releasing it back to the student or faculty inventor. Operating procedures reduce the need for managerial direction of routine matters, improve efficiency by standardizing actions, and facilitate personnel training.

<u>Recommendation</u>:

The Office of Technology Licensing should modify draft procedures to include sections that distinguish the different processes and criteria followed for patent proposals received. These procedures should be made available to research faculty.

<u>Management's Response</u>:

OTL will include in its written procedures guidelines that outline the process of investigating the commercial potential of an invention and the criteria used by The University in determining whether or not to assert its intellectual property rights in an invention and whether or not a patent application is filed or a copyright is registered. These enhanced procedures will be available by May 1, 1998. They will be available to faculty and students on the OTL website (http://www.utexas.edu/academic/otl/) and in hard copy. OTL professional staff participate in a number of orientations and workshops for faculty and students at The University. Information that has been provided verbally at these sessions is being reviewed to determine what enhancements should be made to policy and procedural documents.

Section 4:

Opportunities Exist to Improve Monitoring and Administration of Renovation Projects

The University's Physical Plant should enhance inspection, training, and cash management procedures to ensure quality of work and improve security of assets. While major renovation projects are managed by the System, the University is responsible for routine maintenance and renovation projects worth up to $600,000. During fiscal year 1997, there were 729 such projects planned or in progress, both in-house and contract. Contract projects totaled $11.6 million. Physical Plant projects or "work orders" vary in scope from moving electrical outlets to the redesign and construction of laboratories, offices, and classrooms. Inadequate documentation of inspections can delay identification of substandard work. In addition, the Physical Plant does not have a formal training plan to ensure employees are aware of current technical advances. Further, there are no guidelines governing access to cashier's checks received as bid securities.

Section 4-A:

Process for Recording Results of Inspections Is Not Well-Defined

Methods for maintaining data on problems with contractors, materials, or equipment are not consistent. Although the Physical Plant has job descriptions and performance evaluations which establish the expectation that inspections be performed, no formal policies guide the conduct of inspections or documentation requirements.

The Physical Plant does take certain measures to ensure that projects meet plan specifications, which include:

- Using an application and certificate for payment form endorsed by the American Institute of Architects

  The form is signed by the inspector, design manager, and Director of the Physical Plant before the contractor can receive payment for work performed. It provides financial information regarding phases of the contract and certifies project review.

- Visiting the project site and observing work-in-progress

- Signing-off on daily reports to certify that contract employees worked the number of hours claimed

- Conducting weekly meetings between inspectors and contract coordinators to update the percentage completion information in the contract tracking log

- Documenting project problems as they occur

However, without the use of standard non-conforming reports to document problems, key information on a project's progress may not be captured. A review of project files revealed that individual inspectors have different ways of documenting problems. Some use hand-written notes, whereas others type memos. Without a standard form, all information relevant to the problem may not be described, such as weather conditions, involvement of multiple contractors, or accidents or injuries observed. These criteria may be significant should a contract dispute or litigation issue occur. Adequate documentation may also serve as a training tool for new and existing employees.

Recommendation:

Develop standard forms to use when documenting non-conforming conditions to ensure all relevant data is captured. The form should also provide space for specific commentary by the inspector.

Management's Response:

The auditors' report points out that the Physical Plant takes many steps to ensure that projects meet planned specifications. In addition, The University will develop standard forms as recommended to use when documenting non-conforming conditions.

New and Existing Employees Would Benefit From a Formal Training Plan to Enhance Technical Skills

No detailed policy exists related to ongoing training for Physical Plant employees involved in work-order management. Employees impacted include architects, engineers, inspectors, and planners. Continuing education requirements or recommendations have not been developed for technical training. The Physical Plant's manual leaves training to the discretion of each supervisor, which may result in unequal or unidentified training opportunities among staff. Opportunities for training may include classes or seminars in construction/renovation design, planning, inspection, or relevant technological advances.

Recommendation:

Develop a departmental training policy for both supervisors and staff recommending minimum annual training hours and specific target areas for each position. This plan would serve as a commitment to ensure that management and staff enhance their skills in order to meet the responsibilities of their positions.

Management's Responses:

The Physical Plant will expand its existing training policy. Additionally, the Physical Plant currently is recruiting a Training Coordinator who will develop and monitor training for employees.

Section 4-C:

Restrict Access to Cashier's Checks Provided as Bid Securities

Cashier's checks received to secure bids are not adequately tracked or secured. A bid security provides assurance to the University that if awarded the contract, the bidder will promptly enter into a contract and execute bonds as outlined in the "Specifications and Information to Bidders." The bid security may be in the form of a bid bond or a cashier's check. Checks are not tracked in a log, and they are stored with project records in unlocked file cabinets.

The Physical Plant's guidelines require cashier's checks to be returned to all except the three lowest bidders within approximately three business days after opening of bids. However, in testing 15 files, a check for $1,850 was observed in a contract file for a project which is 98 percent complete.

Use a check log to record when cashier's checks are received and distributed to ensure that checks are returned to the contractors in a timely manner. In addition, use of a lock box would improve security to cashier's checks while in the Physical Plant's possession.

Management's Responses:

The Physical Plant now is using a check log to ensure that checks are returned to contractors in a timely manner. The Physical Plant also will purchase a lock box to secure cashier's checks.

Section 5:
University Pioneers Integrated Planning and Budgeting Systems for Colleges

The University has developed and implemented an innovative system for managing academic performance and resources. Initiated during the 1994-1995 academic year, the COMPACT 2000 system links budget and planning information to monitor the effectiveness of the University's colleges. Under the new system, individual colleges enter formal contracts or "compacts" with the Provost concerning goals and underlying pledges for financial, personnel, and capital resources. The University has 14 schools and colleges with a combined annual budget of $415 million.

A primary objective of the new system was to move from generic policies to recognizing and addressing the unique environment of each college. Another objective was to make management information more accessible to support decisions impacting the colleges. The COMPACT 2000 system promotes both autonomy and accountability among participating colleges and schools.

Section 5-A:
Deans and Provost Demonstrate Commitment to Achieving Performance Objectives

The cornerstone of the new system is a written agreement or "compact" between the Provost's Office and each dean that outlines expectations for the year. The annual agreements are based on extensive self-assessments within each college. In the fall, deans collect and analyze operational, performance, and financial data from various sources. Each spring the deans present their goals in a joint meeting with Provost, Admissions, Budget, and Institutional Studies staff members to determine how the goals will be prioritized, funded, and measured. The compact generated from this assessment defines the challenges, objectives, planned activities, and available resources relevant to the distinct mission of each college. As a result, both the Dean

and the Provost have appropriate benchmarks to measure the college's efficiency and effectiveness during the year.

Technological Support Contributes to Effectiveness of Planning and Budgeting System

An advantage of the COMPACT 2000 system is improved access to management information. The compacts for each college are available on the Internet. In addition, each dean has automated access to the college's operational data to support timely and informed decision-making. Previous management reports itemized specific financial transactions but did not consolidate data into relevant categories or formats. The COMPACT 2000 database allows colleges to view summarized reports containing a variety of significant measures, including but not limited to:

- Contracts and Grants Expenditures per Faculty FTE
- FTE Student to FTE Faculty Ratio
- Budgeted Expenditures/Available Balance
- Yearly Endowment per FTE Student
- Percentage of Lower Division Courses Taught by Tenured/ Nontenure Faculty and Assistant Instructors
- Six-Year Graduation Rates from College and from Other UT Colleges

Objective, Scope, and Methodology

Objective

Our audit objective was to conduct a high-level evaluation of the management control systems within The University of Texas at Austin to identify strengths and areas for improvement. We evaluated whether control systems were established to support the University's goals and objectives. The audit assessed control systems in place during fiscal year 1997.

Management controls are policies, procedures, and processes used to carry out organizational objectives. They should provide reasonable assurance that:

- Goals are met.
- Assets are safeguarded and efficiently used.
- Reliable data is reported.
- Laws and regulations are complied with.

Management controls, no matter how well-designed and implemented, can only provide reasonable assurance that objectives will be achieved. Breakdowns can occur because of human failure, circumvention of control by collusion, and the ability of management to override control systems.

Scope

The scope included consideration of selected systems involving policy management, information management, and resource management. The scope of this review was confined to areas not addressed by recent, ongoing, or planned audits. Recent internal audit reports include a review of endowments and student fees. State Auditor's Office projects related to the University include:

- A fiscal year 1997 audit report on human resource management at selected agencies and universities (*An Assessment of Human Resource Management Controls in Texas State Government*, SAO Report No. 97-058, May 1997)

- A fiscal year 1997 statewide audit including reviews of financial aid and research and development grants (in progress)

- A fiscal year 1998 planned review of contract expenditures at selected agencies and Universities

Consideration of policy management systems included a limited review of:

- Processes used to create and monitor University strategic and operating plans
- Processes used to create and monitor University budgets
- Processes used to create, implement, evaluate and revise University policies and procedures

Consideration of the University's information management systems included a limited review of:

- Processes for collecting, maintaining, and updating information
- Existing management reports
- Timeliness, accuracy, and availability of information

Consideration of the University's resource management systems included a limited review of:

- Processes used to control the University's cash
- Processes used to ensure proper management of inventory assets
- Protection of computers and computer applications

Methodology

The audit methodology consisted of gaining an understanding of selected control systems. In specific areas, tests were performed to determine if the control system was operating as described. Finally, the results were evaluated against established criteria to determine the adequacy of the system and to identify opportunities for improvement.

An understanding of the control system was gained through interviews with management, faculty, and staff. Written questionnaires and reviews of University documents were also used to gain an understanding of the control systems in place. Control system testing was conducted by comparing the described and actual processes. The testing methods primarily consisted of document analysis, process and resource observation, and employee interviews.

The following criteria were used to evaluate control systems:

- Statutory requirements
- University policies and procedures
- General and specific criteria developed for the State Auditor's Office Assessing Risk in Key Systems Project
- State Auditor's Office Project Manual System: The Methodology
- State Auditor's Office Project Manual System: The HUB
- Other standards and criteria developed through secondary research sources, both prior to and during fieldwork.

Fieldwork was conducted from June 1997 through October 1997. We did not verify or review the accuracy of the data provided by The University of Texas at Austin. The audit was conducted in accordance with applicable professional standards, including:

- Generally Accepted Government Auditing Standards
- Generally Accepted Auditing Standards

The following members of the State Auditor's staff performed the audit work:

- Valerie Hill, MBA (Project Manager)
- Sean Gaven, CPA, CIA
- Deborah Mitchell, CPA
- Robert Rodney, CPA
- Carol A. Smith, CPA (Audit Manager)
- Deborah Kerr, Ph.D. (Audit Director)

Other Information

Table 3

Recurring Safety Violations at Selected University Labs		
Laboratory Name and Room Number	**Policy Violated**	**Years Communicated to Management**
Biology - 021	Emergency showers and eye washes are available and unobstructed.*	1994, 1995, 1996
Experimental Science - 242	Chemical containers and labels are in good condition.	1995, 1996, 1997
Pharmacy - 4.202	Lab employees have sufficient knowledge regarding work place hazards as required by the Texas Hazard Communication Act.	1996, 1997
Patterson - 504	Lab employees have sufficient knowledge regarding work place hazards as required by the Texas Hazard Communication Act.	1996, 1997
Pharmacy - 4.212	No breakable chemical containers are stored on the floor unless boxed.*	1995, 1996
Welch - 4.154	Compressed gas cylinders are secured and safety caps are in place if not in use.	1996, 1997 (February/June)
Welch - 4.148	Chemicals are stored appropriately (for example, by hazard class), hazardous chemicals are stored in low cabinets or shelves, and containers are in good condition.	1995, 1997 (February/June)
Welch - 3144	Chemical containers and labels are in good condition.+	1995, 1996
Welch - 4.410	Secondary containers, other than ones for immediate use, are labeled with the identity of the contents.	1995, 1996, 1997
Welch - 5.132	Secondary containers, other than ones for immediate use, are labeled with the identity of the contents.	1996, 1997 (March/June)
Welch - 3.404	Chemicals are stored appropriately (for example, by hazard class), hazardous chemicals are stored in low cabinets or shelves, and containers are in good condition.	1996, 1997
* Criteria appeared on previous inspection forms, but not on most current inspection form. + No 1997 inspection report found for this laboratory.		

Source: Office of Environmental Health and Safety, The University of Texas at Austin

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