

**OPERATION AND MAINTENANCE OF PLANT**

**SAN DIEGO STATE UNIVERSITY**

**Report Number 99-39**

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## **ABBREVIATIONS**

CPDC	Capital Planning, Design & Construction (previously PPD)
CSU	California State University
EO	Executive Order
MMS	Maintenance Management System
OMP	Operation and Maintenance of Plant
PM	Preventive Maintenance
SAM	State Administrative Manual
SDSU	San Diego State University
SUAM	State University Administrative Manual

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## INTRODUCTION

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### PURPOSE

Our overall audit objective was to ascertain the effectiveness of policies and procedures related to the administration of the Operation and Maintenance of Plant (OMP) and to ensure that controls addressing current and future facility requirements are in place.

Within the overall audit objective, specific goals included determining whether:

- ▶ the administration and management of the OMP program and facilities planning functions provide clear lines of organizational authority and responsibility;
- ▶ budgeting procedures adequately address OMP funding, ensure that one-time funding allocations are used for their designated purpose, and include procedures to monitor budget versus actual expenses;
- ▶ a comprehensive program is in place that identifies all maintenance/repair requirements including preventive maintenance, facility repairs, deferred maintenance, custodial services, and grounds keeping;
- ▶ the maintenance/repair program includes productivity/performance standards, quality control, and employee training to ensure that quality work is performed effectively and efficiently;
- ▶ administrative controls over the maintenance/repair program are adequate, and the maintenance management system includes work order scheduling, costing and control; backlog reports; and productivity tools;
- ▶ non-maintenance work is adequately controlled and fully charged back to the customer in accordance with CSU directives;
- ▶ all non-general fund operations and chargeable costs have been identified in accordance with CSU directives and are fully charged back to the operations;
- ▶ chargebacks are adequately controlled and properly valued;
- ▶ maintenance materials, supplies, and equipment are adequately controlled and properly accounted for;
- ▶ a utilities management program has been established in accordance with CSU policy; and
- ▶ the campus physical master plan is maintained in accordance with CSU policy.

## SCOPE AND METHODOLOGY

This review emphasized but was not limited to compliance with state laws, Board of Trustee policies, and Office of the Chancellor and campus policies, letters and directives. June 1998 to date was the primary period of review.

Our primary focus involved the internal administrative and accounting controls over the operation and maintenance of plant functions. Specifically, we reviewed and tested:

- ▶ budget allocation and monitoring procedures;
- ▶ identification of maintenance/repair requirements;
- ▶ work order processing and completion of preventive maintenance tasks;
- ▶ procedures for controlling custodial services and grounds keeping;
- ▶ procedures for controlling and processing chargebacks for non-maintenance work and costs associated with non-general fund operations;
- ▶ procedures for controlling and accounting for maintenance materials, supplies and equipment;
- ▶ implementation of a utilities management program; and
- ▶ maintenance of the campus physical master plan.

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## BACKGROUND

In response to the systemwide risk assessment conducted during 1996, which included input from officers representing the chancellor's office and each CSU campus, the Board of Trustees directed this review of Operation and Maintenance of Plant at its January 1999 meeting.

The Legislative Analyst's Report on the 1979/80 budget addressed the need to protect the substantial public investment represented by CSU facilities, and the Legislature subsequently directed the CSU to implement a preventive maintenance program on each campus. In December 1979, a CSU Task Force on Plant Maintenance was appointed to explore preventive maintenance needs for the system and concluded that the concept of preventive maintenance was too narrow in scope to accommodate the total maintenance needs of the CSU. Consequently, a concept of "Planned/Programmed Maintenance" was proposed, incorporating preventive maintenance as well as systematic planning and programming. The CSU Executive Council reviewed the task force report and approved the concept in March 1981.

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## INTRODUCTION

In April 1981, Executive Order No. 343, *Establishment of Planned/Programmed Maintenance*, was issued. It stated that “effective immediately, each campus shall initiate a Planned/Programmed Maintenance Management system that will provide systematic maintenance of State owned campus facilities, program future special maintenance and repair project requirements, identify deferred maintenance needs, and schedule replacement of Group I equipment.”

In 1983, the Office of the University Auditor reviewed *Plant Operations* at eight campuses and issued a systemwide report. The Board of Trustees subsequently accepted the systemwide report and addressed nine implementing actions in Trustees’ resolution RA 9-83-057. These actions were adopted in CSU directive BA 84-25, *Implementation of Trustees’ Resolution RA 9-83-057 (Plant Operations)*, dated July 25, 1984.

Throughout this report, we will refer to the program as operation and maintenance of plant (OMP). The titles of the departments assigned responsibility for managing CSU campus operation and maintenance of plant include, among others, physical plant and plant operations. At San Diego State University, the Department of Physical Plant manages the OMP program.

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## OPINION

We visited the San Diego State University campus from June 7, 1999, through July 16, 1999, and audited the procedures in effect at that time.

In our opinion, the automated work order system was adequate to manage and account for the maintenance/repair program, and budget-monitoring procedures were effective. Areas needing improvement are mentioned in the executive summary.

## **EXECUTIVE SUMMARY**

The purpose of this section is to provide management with an overview of conditions requiring their attention. Areas of review not mentioned in this section were found to be satisfactory. Numbers in brackets [ ] refer to page numbers in the report.

### **CHARGEBACKS AND NON-MAINTENANCE WORK [5]**

Procedures governing reimbursement (chargebacks) to Physical Plant for services rendered and the valuation of work orders were not adequate. Adequate controls over chargebacks and current chargeback rates not only help to ensure complete reimbursement to physical plant for services rendered, but they can also lead to an increase in funds available for maintenance and repairs.

### **MAINTENANCE MANAGEMENT PROGRAM [7]**

Controls over preventive maintenance (PM) tasks assigned to trade shops did not ensure that only valid PM tasks are included in the PM program. Ensuring the validity of all PM work enhances the effectiveness and efficiency of PM scheduling and coverage of campus equipment and facilities.

### **MAINTENANCE MATERIALS AND EQUIPMENT [8]**

Maintenance materials and supplies inventory procedures were inadequate. Strengthening inventory controls reduces the risk of lost or stolen assets and could result in lower overall inventory costs.

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## OBSERVATIONS, RECOMMENDATIONS, AND CAMPUS RESPONSES

### CHARGEBACKS AND NON-MAINTENANCE WORK

Procedures governing reimbursement (chargebacks) to Physical Plant for services rendered and the valuation of work orders were not adequate.

- ▶ Labor rates currently used for chargebacks had not been updated since 1995. An analysis of the labor rates in use showed that current labor rates were 7% to 20% higher for seven of the shops reviewed. In addition, the current benefit rate was not being applied to auxiliary billings.
- ▶ The overhead rate had not been formally reviewed and updated since 1990. The associate vice president, financial management, indicated that he performed an informal review in 1995.
- ▶ Procedures over work order closure did not ensure that chargebacks were accurate and work orders were properly valued. For example:
  - A review of 35 chargebacks closed during March through May 1999 disclosed that eight (23%) contained one or more discrepancies of a varying nature. Three chargebacks did not include five purchase requisitions totaling \$1,538; unit material costs for one chargeback exceeded those on a corresponding purchase requisition; and support for overtime hours charged was not available for five chargebacks.
  - A review of 30 work orders closed during March through May 1999 disclosed that seven (23%) contained discrepancies of a varying nature. Three work orders did not include four purchase requisitions totaling \$1,068; support for overtime hours charged was not available for two work orders; one work order did not agree with the amount recorded in the maintenance management system (MMS); and material costs for one work order could not be reconciled to a corresponding purchase requisition.
- ▶ Procedures have not been defined for a back end review of closed work orders to ensure that the new system is working effectively. However, a new MMS, which transfers the responsibility for ensuring that all costs are included on work orders from the work control center to shop supervisors/managers, was implemented July 1, 1999,
- ▶ Current procedures did not include verification that credit is received for all chargebacks. The work control center had been verifying that credit was received for all chargebacks prior to 1999. However, verification had been reduced to a spot check basis during 1999.

CSU directive BA 84-25, *Implementation of Trustees' Resolution RA 9-83-057*, dated July 25, 1984, states that each campus will develop a chargeback system, and campus policy and procedures must ensure the return of all costs to the plant operations budget.

SAM §8752 indicates that departments must to recover full costs whenever goods or services are provided to others.

SAM §20003 states that a satisfactory system of internal accounting and administrative control shall include a system of record keeping procedures adequate to provide effective accounting control over assets, liabilities, revenues, and expenditures. The associate director of physical plant stated that the new system implementation affected the level of review.

The physical plant director stated that campus personnel determined that it would be beneficial to build physical plant's reputation within the campus community prior to revising rates, as physical plant has been emphasizing customer service and productivity over the last few years. The associate director of physical plant stated that the new system implementation affected the level of review and drafting of new system procedures. She further stated that a year end comparison of billed versus actual charge back dollars received to date only indicated a \$2,000 variance.

Inadequate controls over chargebacks and outdated chargeback rates decrease funds available for maintenance and repairs and increase the risk of inaccurate work order valuations and reimbursements for services rendered.

### **Recommendation 1**

We recommend that the campus:

- a. update labor, benefit and overhead rates used for chargebacks;
- b. maintain labor, benefit and overhead rates on a current basis;
- c. perform back end reviews for the new MMS to ensure that chargebacks and work orders are properly valued; and
- d. institute verification procedures to ensure that credit is received for all chargebacks.

### **Campus Response**

We concur. As to point (a), a copy of the new rates will be forwarded by February 1, 2000. As to points (b), (c), and (d) procedures have been developed and forwarded.

- We expect a salary schedule reflecting the newly negotiated labor rates in November. Those salary rates, and the 1999/2000 employee benefit rate, will be inserted into the previously approved formula for calculating Physical Plant's chargeback. The new rates will be calculated by January 31, 2000 and effective March 1, 2000. Work orders estimated prior to that date will be charged at the current chargeback rate.

- The recently implemented automated Facilities Management system will compare estimates against actual work order costs. Reports are not necessary for this as all work order information is available on the PC screen and managers can review and approve directly from the screen. As verified by your audit, the discrepancies in the charges on the work orders sampled amounted to less than 1 percent of the total amount billed.
- Existing chargeback verification procedures have been efficient. The existing process of verifying the aggregate revealed an approximate \$2000 variance from the nearly \$6 million billed for 1998/99. Procedures embedded in Oracle Financials will automatically ensure chargeback posting; payment of work orders will be verified through Oracle Financials.

## MAINTENANCE MANAGEMENT PROGRAM

Controls over preventive maintenance (PM) tasks assigned to trade shops did not ensure that only valid PM tasks are included in the PM program.

Our review of PM tasks for the March 1, 1999 through April 16, 1999 period disclosed that Plumbing and Refrigeration did not perform 90 and 147 assigned PM tasks, respectively. Physical Plant explanations included the following:

- Checked by another department
- Checked by San Diego Gas and Electric
- Replaced with a new unit that does not require PM due to its nature
- PM contracted out
- PM completed during other maintenance work
- Item no longer in place
- Item in a secured building that is not being used
- PM performed during daily operations
- PM performed during inventory of PM tasks
- No explanation

Executive Order #343, *Establishment of Planned/Programmed Maintenance*, dated April 29, 1988, states that each management system shall incorporate a current, comprehensive schedule for all maintenance work to be accomplished in a timely manner.

SAM §20003 states that a satisfactory system of internal administrative control shall include an established system of practices to be followed in performance of duties and functions as well as an effective system of internal review.

The physical plant director stated that a decision was made a year ago to implement a new maintenance management system. This delayed a thorough review of the PM program. The assistant director of physical plant stated that an election had been made not to electronically transfer the current PM

program to the new system but to perform a complete review of the PM program. Such a review is currently underway.

Not ensuring that all PM work included in the PM program is valid increases the risk of ineffective and inefficient PM scheduling and coverage for campus equipment and facilities.

### **Recommendation 2**

We recommend that the campus review all PM tasks assigned to trade shops and update the PM program to include only valid PM tasks.

### **Campus Response**

We concur and have forwarded documentation outlining newly developed procedures.

New task list and frequency schedules have been created for all existing equipment to be maintained in the PM system. An entirely new equipment inventory (based on a physical inventory of equipment to be maintained) was entered with new task lists and frequency schedules.

## **MAINTENANCE MATERIALS AND EQUIPMENT**

Maintenance materials and supplies inventory procedures were inadequate.

We noted that:

- ▶ The last comprehensive physical inventory was performed in June 1994. Since then, periodic “spot checks” have been performed throughout the year -- usually at the time of reorder. However, records were not maintained of these spot checks, and no attempt had been made to perform such checks on a “cycle count” basis.
- ▶ Some materials and supplies recorded on the inventory were physically maintained in trade shops as bench stock. However, there was no procedure in place to remove the items from inventory as they were used. Maintenance of inventory in trade shops also prevented a proper segregation of duties and weakened physical security over the items.
- ▶ A review of the Slow Moving and Obsolete Items Analysis as of June 17, 1999 showed 870 of 3,567 (or 24.4%) inventory items with no movement in over a year. The 870 items were valued at \$102,987 or 25% of the total inventory.

SAM §3535 states that state agencies must maintain unit stock records and conduct physical inventories if they operate warehouses with gross floor space exceeding 4,000 sq. ft., average annual inventory investment in expendable goods exceeding \$50,000, annual issues of expendable goods

exceeding \$100,000 or expendable goods inventory consisting of 400 or more stock items. In addition, each state agency must develop internal policies and procedures for effective materials management within each organizational unit that maintains continuing inventories of expendable goods.

CSU directive BA 84-25, *Implementation of Trustees' Resolution RA 9-83-057*, dated July 25, 1984, states that internal controls over the purchase, storage and use of plant operations department materials be developed and implemented at the campuses.

SAM §20003 states that a satisfactory system of internal accounting and administrative control shall include segregation of duties appropriate for proper safeguarding of state agency assets and a system of record keeping procedures adequate to provide effective accounting control over assets, liabilities, revenues, and expenditures.

The physical plant director stated that a campus decision had been made to streamline the way materials are received and disbursed in physical plant, and physical plant is currently in the process of reevaluating the entire material handling process. The assistant director of physical plant stated that the inventory module in the old maintenance management system (MMS) was never fully utilized as intended.

Lack of sufficient inventory controls increase the risk of lost or stolen assets and lead to higher overall inventory costs.

### **Recommendation 3**

We recommend that the campus:

- a. develop formalized internal policies and procedures for effective materials management, including documented physical inventories with reconciliations to perpetual records;
- b. evaluate the physical plant central warehouse program to ensure proper segregation of duties and physical security over all items maintained in inventory; and
- c. review the Slow Moving and Obsolete Items Analysis and eliminate, by appropriate methods, items of no further use.

### **Campus Response**

We concur. As to point (a), a copy of internal control procedures will be formalized and forwarded in July 2000. As to point (b), by February 1, 2000, we expect to have a consultant identified who will evaluate central warehouse operations. The consultant's evaluation report will be forwarded when available. As to point (c), by March 2000 results of a physical inventory will be forwarded and slow moving and obsolete items identified prior to implementing the FM inventory module.

- When the FM material management module is brought on line, the formalized internal policies developed will support this automated system Implementation is anticipated to be complete June 30, 2000, and a copy of those internal procedures will be forwarded in July 2000.
- We are hiring a consultant to evaluate Plant's current program and design procedures for inventory control. Implementation of the inventory module of FM will not begin until we have receipt of the consultant's analysis and recommendations.
- A complete physical inventory will be one of the first steps in the implementation of the FM inventory module. Items appearing on the Slow Moving and Obsolete Items Analysis will be verified and either placed into the new inventory or removed in accordance with campus surplus property procedures (handled by the Property division of Business Services).

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## APPENDIX A: PERSONNEL CONTACTED

<u>Name</u>	<u>Title</u>
Stephen Weber	President
Scott Burns	Assistant Director, Physical Plant
John Eaddy	Chief of Custodial Services, Physical Plant
Anthony Fulton	Director, Facilities Planning
Ellene Gibbs	Director, Business Information Management
Ida Halm	Accounting Technician, Physical Plant
Martin Holzman	Director, Physical Plant
Alison Hunter	Tax and Audit Coordinator
Gretchen Jones	Associate Director, Physical Plant
Bill Lekas	Administrative Operations Analyst, Physical Plant
Keith Ochs	Supervising Building Service Engineer, Physical Plant
Ken Perry	Associate Vice President, Financial Management
Linda Richter	Director, Budget and Planning
Sally Roush	Vice President, Business and Financial Affairs
Carl Schneider	Chief of Programs and Engineering, Physical Plant
Joe Stahley	Assistant Director, Physical Plant
Valerie Wheeler	Work Control Coordinator, Physical Plant