

**TEXAS TECH UNIVERTSITY  
HEALTH SCIENCES CENTER**

**Part VII**

**Utility Systems Management Plan**

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## **Utility Systems Management Plan**

### **I. Mission**

The mission of this plan is to promote a safe, controlled, comfortable environment of care that reduces the potential for organizational-acquired illness while assessing and minimizing risks of utility failures to ensure operational reliability of utility systems.

### **2. Authority**

Physical Plant Administrators are responsible for defining this plan. Physical Plant Administrators jointly administer this plan.

### **3, Structure of Physical Plant**

TTUHSC Physical Plant is comprised of six divisions:

- a) Planning, Design, & Construction – participate in planning, design, contract administration, and project management functions for construction and major renovations.
- b) Plant Operations – employs skilled and licensed tradesmen for building maintenance and minor facility renovation. Participates in plan review of all construction contracts. All Plant Operations positions are designated essential/alternate essential personnel.
- c) Safety Services – Safety Services Department: Plans, implements and administers the TTUHSC Safety Programs involving Radiation Safety, Chemical/Hazardous Waste, Life and Fire Safety, Indoor Air Quality Investigation, Occupational Safety/Accident Investigation, Workers Compensation Claims, Laboratory Safety, and Safety Education & Training. Assists administrators, deans and department chairs in meeting their assigned health, safety and environmental responsibilities to comply with safety regulations and guidelines and to meet accreditation, research funding agency requirements and provide employees, students and visitors a safe hazard-free environment.
- d) Engineering Services – employs licensed engineers functioning as institutional contact for utility providers and energy-consumption issues. Functions as practical technical resource to other members of Physical Plant and maintains current and historical construction documents.
- e) Housekeeping – Contracted services with local administrative oversight are obtained to provide a clean environment.
- f) Grounds Maintenance – Texas Tech grounds maintenance department is utilized to ensure a safe exterior environment is maintained.

### **4. Responsibilities**

Plant Operations is the primary response group for maintenance and operation of critical operating systems and components. Managing Director, Physical Plant, is responsible for maintaining documentation related to systems reliability and performance. Plant Operations utilizes a Computerized Maintenance Management System (CMMS) to record planned and reactive maintenance activities associated with various systems.

All divisions within Physical Plant interact to ensure high standards are maintained in the environment of care.

## **5. Implementation**

Plant Operations utilizes an automated preventive maintenance plan within the CMMS to generate work orders to ensure critical component/system reliability. Tasks and frequencies are determined by manufacturers data and historical information gathered from this campus.

Plant Operations utilizes computerized vibration analysis equipment that interfaces with the CMMS to monitor and record vibration of major rotating equipment (air handlers, comfort water pumps, exhaust fans) that comprise environmental support systems. Vibration analysis provides meaningful information assisting in predicting equipment failure. Predictive failure allows planned equipment replacement and minimizes risk.

Plant Operations utilizes infrared thermography to identify potential problems in the secondary electrical distribution system. Video thermal imaging is used to record component performance under load conditions. Potential problematic areas are produced in report form with recommendations for action. Corrective action is scheduled with affected users.

Plant Operations maintains a schedule for testing the emergency power system. The schedule is distributed annually to designated outage coordinators assigned by department administrators. The test is conducted the first Tuesday each month from 6-7 p.m. The tests are conducted in accordance with Joint Commission for Accreditation of Healthcare Organization (JCAHO) guidelines for load testing. Emergency transfer switches are included in the thermographic studies detailed above.

Plant Operations maintains environmental support systems utilizing the CMMS. Filtration is managed utilizing historical data, scheduled preventive maintenance, and alarm devices. Indoor air quality is a primary issue addressed within the preventive maintenance program.

Plant Operations maintains the medical vacuum system on a weekly basis.

Plant Operations maintains two radio control units and forty-nine portable units, operated under the authority of the Texas Tech Police 800 trunking digital radio system. The radio system is designed as a component of the Emergency Management Operations Center. The system provides for immediate communication between essential personnel in the event the emergency operations center is activated.

Physical Plant utilizes architects, engineers, and operational for review and participation in designing systems and functions, to meet institutional objectives for life support, infection control, and environmental support systems. Major components of critical systems are redundantly configured. The department of Communications Services is tasked with maintaining communications equipment.

## **6. Training and Education**

Tradesmen participate in continuing education courses as a provision of annual licensing (in some cases), and in the pursuit of individual accreditation. Physical Plant employees participate in prescribed safety programs under the guidance of Dept. of Safety Services. Experts, vendors, and contacts are utilized to involve Physical Plant staff members regarding likely risks, personal protective equipment (PPE), prevention, protection, exposure, and appropriate responses.

Unplanned utility outages are discussed and tracked with focus on assessing response through formal after-action meetings. Procedural changes/modifications are communicated to involved parties.

## **7. Information Collection & Evaluation System**

System performance is monitored in several ways:

- Annual performance evaluations are conducted for personnel responsible for system maintenance
- Response is routinely evaluated to ensure appropriate action and communication
- Customer complaints and kudos are communicated within the group
- CMMS vibration monitoring, and thermal imaging are utilized to facilitate predictive and planned maintenance activities for critical system components
- Preventive maintenance tasks are ensured through a quality assurance program that selects equipment items for follow-up inspections based on performance.
- Reporting and evaluation procedure exercised for system failures

The administrative staff will accomplish an annual evaluation of this plan to include operational considerations for each utility system. Details are located in Physical Plant Policy A-1.

### **Corresponding Policies**

Corresponding policies are cross-referenced in the EOC section of the policies matrix. Specific tasks and frequencies for systems preventive maintenance are defined within Plant Operations computerized maintenance management system (CMMS).