

**CENTRAL STATE HOSPITAL
PLAN**

SUBJECT: **PLANT OPERATIONS UTILITIES MANAGEMENT PLAN**

ANNUAL REVIEW MONTH: March

RESPONSIBLE FOR REVIEW: Maintenance Director

LAST REVISION DATE: August 2009

SCOPE:

The mission of Central State Hospital (CSH) is to assist individuals who have behavioral healthcare needs as they move towards recovery. This mission is supported by the Utilities Management Plan, in conjunction with the Plant Operations Utilities Management Plan, which provides for the continuous availability of essential utilities; or emergency response plans in the case of a utility system failure, problem, or user error. The Utilities Management Plan includes cross-references to other plans and policies regarding utility systems and their critical components.

AUTHORITY:

The Central State Hospital Leadership Team, through the Central State Hospital (CSH) Environment of Care (EOC) Team, authorizes the development and implementation of the Utilities Management Plan. The Maintenance Director shall have operational and administrative responsibility for the management of the Plan.

OBJECTIVES:

The Plant Operations Department's primary mission is to provide a safe and comfortable environment for the more than 5,000 clients, employees and visitors to CSH. This is accomplished through endeavors to maximize the utilization of approved departmental funds and resources. Management priorities include the reduction of unanticipated utility outages, upkeep of selected equipment, and replacement of major equipment that has exceeded its useful life expectancy.

PROCEDURE:

- A. CSH EOC Function Team:
The CSH EOC Function Team provides support and informational guidance to the CSH Leadership Team, Medical Staff, Service Chiefs, Office Directors, and CSH staff regarding safety issues and regulatory compliance.
- B. Safety Management:
The EOC Function Team works in close coordination with Safety Department. The CSH Safety Director serves as a resource person in the areas of Environmental Health and Safety, Fire Safety, regulatory compliance, and with The Joint Commission (TJC) accreditation preparation.
- C. Internal Safety Committees:
Every department, area or service with 50 or more employees has an Internal Safety Committee. The Internal Safety Committee Chairperson is a member of the EOC Function Team, and meets at least every other month, and coordinates the dissemination of information and materials from the CSH EOC Team. The EOC Committee coordinates with the Internal Safety Committees in regard to the utilization, maintenance, testing, and inspection of utility systems.

UTILITY SYSTEMS:

- A. Electrical Distribution systems.
- B. Emergency Generators.
- C. Natural Gas System
- D. Piped Medical Gas
- E. Medical Vacuum
- F. Sanitary Sewer System
- G. Nurse Call System
- H. Telecommunications
- I. Steam/Hot Water
- J. Potable Water

K. Fire Protection System

L. Vertical Transport (Elevators)

M. Heating, air conditioning and other utilities support systems to sustain a comfortable environment.

A. Electrical Distribution:

All electricity to CSH is routed into the CSH main substation from the public utility. From the substation to end use, the electrical system is owned and maintained by CSH. High voltage electricity is routed to all client-care and support buildings throughout the campus on five separate circuits. Voltage is reduced through transformers at each building, routed through main switch gear, distribution panels, service disconnects, etc. to end users throughout the buildings.

B. Emergency Electrical Power:

All client-care buildings at CSH have an emergency power generator. The generators are capable of producing sufficient power to meet the critical building requirements and/or requirements by all authorities having jurisdiction. Critical requirements include, but are not limited to: emergency lighting; exit lighting; electrical power in medication, examination rooms, treatment rooms, and nursing stations; communication systems; intensive care units, recovery room; and at least one elevator per building (if multi-story). Some generators on campus are capable of carrying the entire building load. Any generators with monthly testing results of less than 30% of the generator's name plate capacity, or 50% of the total emergency power supply system load, will be monitored for evidence of wet stacking. In the event that wet stacking occurs, they will be tested annually with a portable, resistive load bank or hospital load equal to or greater than 80% of name plate rating for a minimum of two hours, and until exhaust is clear of black smoke.

C. Natural Gas:

Gas is supplied to the CSH substation from the public utility. The hospital owns and maintains the piping from this point. The exception to this is at the Kidd and Education & Work Activities (EWAC) Buildings located south of the main campus. Natural gas is used to fuel steam boilers, food preparation in the central kitchen, for heating in some support buildings and personnel dwellings. Natural gas is not piped into any client buildings for heat with the exception of EWAC. All buildings except Kidd and EWAC are heated either by central steam or by hot water heated by central steam.

D. Medical Gas:

1. There are two medical gas systems at CSH; one in Boone and one in the Kidd buildings. A third system is expected to be installed in Nursing Home Center No. 1 this year. Hospital oxygen systems consists of a liquid oxygen bulk tank with back up systems of pressurized bottles integrated into the piping system in such manner as to automatically start supplying oxygen in the event that the bulk supply of liquid is unavailable.
2. The medical gas system in the Kidd Building also consists of a piped nitrous oxide, nitrogen and vacuum system. Both nitrous oxide and nitrogen systems have two banks of pressurized tanks each with one bank on line at all times and designed that the back up banks will automatically come on line when primary supply is used up. The vacuum system is piped from each client room as well as all other appropriate areas to the physical plant. This system is controlled to supply preset vacuum limits at all times.

E. Medical Vacuum:

A piped vacuum system is installed in both the Boone and Kidd Buildings. These systems are maintained in conjunction with the medical gas systems.

F. Sanitary Sewer System:

The plumbing systems at CSH are installed and maintained by various crews depending on the location of the plumbing as well as size of the buildings, etc. Maintenance personnel assigned to the buildings, maintains the plumbing inside client-care buildings. The plumbing in personnel dwellings and support buildings is installed, maintained and repaired by special plumbing crews. The plumbing crews also handle most installations of new or replacement plumbing in client-care buildings. The outside sewerage system is installed, maintained, and repaired by the hospital's Plant Operation Staff.

G. Nurse Call System:

1. Two client-care buildings at CSH have nurse call systems: Kidd and Boone. Kidd Building nurse call systems are located on the third and fourth floors. These systems have two-way communications capabilities between each client room and the nurses' stations. In addition to the client rooms, there are also emergency call buttons in each client bathroom. When a call is initiated from any client room, a light is illuminated at the master station at the nurses' stations and an audible signal is sounded. Each remote station illuminates a different light at the master station. A numbered overlay is installed over the lights on the master station, so that nursing personnel can determine the origins of the calls, whether or not voice communication is established. These systems have priority settings that can be changed according to clients' clinical condition or other treatment factors. When remote stations are set in

the normal mode, communication can be canceled from the rooms or nurses station. When the remote station is set in emergency mode, the call can be canceled only from the rooms. Lights installed over the client room doors that illuminate when a call is activated from a room. These lights burn steady in the normal mode and flash in the emergency mode. The bathroom emergency calls are emergency mode only and can only be canceled from the bathroom that the call originated from.

2. The Boone Building nurse call system is installed as a separate service on each living unit. The system on each unit has two way conversation capabilities between each client room and the nurses' stations. In addition to the client rooms, there are also emergency call buttons in each client bathroom. Calls from client rooms can be canceled from the rooms or nurses station. The bathroom emergency calls can only be canceled from the bathroom that the call originated from.

All two nurse call systems are served by the respective building's emergency power system.

H. Telecommunications:

The communication system consists of a public telephone system with a paging system integrated into the phone system. The telephone and paging system is installed and maintained by the local Telephone Company.

I. Steam/Hot Water:

Steam is used at CSH primarily for building heating, cooking and heating domestic hot water.

Steam for the main campus is produced at the central steam plant and is piped to all client care buildings and certain support buildings as well. The steam plant utilizes a combination of wood fired boilers and natural gas fired boilers with fuel oil backup. All piping from the steam plant to the buildings is underground, either in tunnels or direct buried with protective coating on direct buried piping. There is also a 60,000 gallon propane system installed adjacent to the steam plant that could be utilized in an emergency situation.

J. Potable Water:

CSH has a gross water storage capacity of two million, four hundred thousand gallons. This includes one ground reservoir of one million gallons, one ground reservoir of one half million gallons, and six elevated tanks with combined capacity of one million, one hundred thousand gallons. In consideration of reserves required in elevated tanks to maintain adequate water pressure for fire safety, this is sufficient for one to two days water supply under normal usage. Water is purchased from the city of Milledgeville and is piped to the CSH ground reservoirs via one sixteen inch and two twelve inch pipes. The pumping station that pumps water from the ground

reservoirs to the elevated tanks is located adjacent to the ground reservoirs. There are five electrically operated pumps and one diesel engine-powered standby pumps at the pump station. Any one of the six pumps has the capability of providing sufficient water to all elevated tanks to operate the entire hospital. The diesel-powered pump is operated once per week for one hour to assure reliable backup service, if required. The pump station has a full load generator that is tested once a month.

K. Fire Protection Systems:

Sprinkler systems vary throughout the hospital from meeting minimal requirements of authorities having jurisdiction to total building sprinkler coverage. All client care areas have automatic fire alarm systems, which tie directly into the Police Station for immediate notification in the event of an alarm. Smoke detectors systems are installed in each client care building as required on HVAC systems, corridors and other areas of the hospital.

L. Elevators:

All multi-story client-care buildings, with the exception of Binion, have at least one passenger elevator. The emergency generator serves at least one elevator in each building. The safety division of the Georgia Department of Labor, on a semi-annual annual basis, and following renovation or new installation, inspects all elevators. Certificates are issued for each elevator once elevators are inspected and deficiencies, if any are corrected. Plant Operations personnel on an annual basis also perform safety inspections. Tags to document inspections are placed on hydraulic systems, governors, or on top of elevators cabs as applicable to document inspection. Inspections in the future will be performed in accordance with the computerized P.M. program. Passenger and Freight elevators are inspected semi-annually by Dept. of Labor and monthly by CSH. Passenger test on Hydro's are performed annually. Dumbwaiters are inspected monthly by Central State Hospital.

M. HVAC Systems:

The HVAC systems at CSH are very diverse. Each building with the exception of Freeman and Howell has its own system. Chilled water for these buildings is piped from a central chiller plant. Each building including Freeman and Howell has a separate heating system. The cooling for the buildings is provided by either centrifugal or reciprocating chillers. Chilled water from these chillers is piped to coils located in air handling units throughout the buildings. Heating is provided by steam or hot water piped to coils located in the air handling units and/or in the duct systems. Air is induced or blown across the coils, tempered to desired temperature and carried through duct system to provide climate control to all areas. All systems are equipped with smoke detectors and other safety devices as dictated by authorities having jurisdiction.

TRAINING & EDUCATION:

Orientation on the maintenance of the systems and the equipment relevant to job classification is provided to all new employees of the Plant Operations Department. Any emergency procedures are included in this orientation. Orientation or training classes are given to applicable employees when any significant changes are made to any system or equipment. This orientation or training may be given by equipment manufacturers, contractors, line supervisors, engineers or instructors from area technical schools. Annual training or continuing education is based on hospital requirements and the department's assessment of identified need of such training.

This assessment is made from information gained from the following sources:

1. History of the performance or failures of various systems or equipment and user errors.
2. Plant Operations work requests issued by Service Chiefs in the client care areas.
3. Reports from surveyors, state fire inspectors, Baldwin County Fire Inspectors, elevator inspectors, boiler inspectors, and insurance inspectors.
4. Annual inspections performed by CSH Engineers.
5. Inspections performed by CSH officials.
6. Surveys or inspections performed by various authorities such as State Licensure, Central Medicaid/Medicare Service (CMS) and the JC.
7. Review of employees' annual report of performance, which is done by appropriate supervisors of each employee.

Some training is also given as a matter of practice in an effort by the Plant Operations Department to raise employees to a higher proficiency level.

PLAN IMPLEMENTATION:

- A. Performance Improvement Standard:
In keeping with the hospital's mission, Plant Operations will endeavor to deliver optimal service related to utilities by establishing performance standards in the reliability of utility systems. The performance standard for all utility systems is to ensure downtime of each central system (water, gas, steam, electricity, sewer) is less than 0.1%.
- B. Performance Indicator:
The performance indicator is the measured number of hours of each utility system downtime.
- C. Related CSH Plans, Policies, and Procedures:
For more information regarding various CSH Utility Systems, please refer to the following CSH plans, policies, and procedures.

Electrical Distribution:

1. Utilities Operations Manual - Policy/Failure Plan on Electrical System
2. Plant Operations Policy & Procedure 7023 Switching 12Kv Electrical Distribution Systems
3. Plant Operations Policy & Procedure 1010 Lockout/Tagout Policy
4. Plant Operations Disaster Plan - Inclement Weather
5. CSH Disaster Plan - Inclement Weather
6. CSH Policy 3.24 – Work Order Policy

Emergency Electrical Power:

1. Utilities Operations Manual - Policy/Failure of Emergency Systems (2) Plant Operations Disaster Plan - Inclement Weather
2. CSH Disaster Plan - Inclement Weather
3. CSH Policy 3.24 – Work Order Policy

Natural Gas:

1. Utilities Operations Manual - Plan on Natural Gas System
2. Plant Operations Policy & Procedure 8029 Natural Gas Curtailment
3. CSH Policy 3.24 – Work Order Policy

Medical Gas:

1. Utilities Operations Manual - Plan on Medical Gas System
2. CSH Policy 3.24 – Work Order Policy

Medical Vacuum:

1. Utilities Operations Manual - Plan on Medical Gas System
2. CSH Policy 3.24 – Work Order Policy

Sanitary Sewer System:

1. Utilities Operations Manual - Sanitary Sewer System Inspection
2. CSH Policy 3.24 – Work Order Policy

Nurse Call System:

1. CSH Policy 3.24 – Work Order Policy
2. Utilities Operations Manual - Plan on Communications Systems

Telecommunications:

1. CSH Policy 3.24 - Work Order Policy
2. Utilities Operations Manual - Plan on Communications Systems

Steam/Hot Water:

1. CSH Policy 3.24 – Work Order Policy
2. Utilities Operations Manual - Policy/Procedure for Testing Domestic Hot Water

Potable Water:

1. CSH Policy 3.24 – Work Order Policy
2. Utilities Operations Manual - Policy on Plumbing

Information Systems:

1. CSH Policy 3.24 – Work Order Policy

Fire Protection Systems:

1. CSH Policy 3.24 – Work Order Policy
2. Utilities Operations Manual Policy on Sprinkler Systems
3. Utilities Operations Manual Policy on Fire Alarm Systems

Elevators:

1. CSH Policy 3.24 - Work Order Policy
2. Utilities Operations Manual - Policy on Elevators

HVAC Systems:

1. CSH Policy 3.24 - Work Order Policy
2. Utilities Operations Manual - Policy on HVAC Systems

MONITORING AND EVALUATION:

A. Information Collection and Evaluation System (ICES):

Results of the data collection are compiled and reviewed by Plant Operations Department staff, with action taken as appropriate.

B. Quarterly Review Statistics:

Utility systems failures are reported to the EOC Committee and the CSH Safety Management Sub-Committee.

C. Annual Evaluation of the Effectiveness of the Plan:

An annual evaluation of the Utility Management Plan is conducted to ensure that the standards are met, and changes made to the plan as necessary.

Approved:

This plan has been approved by the CEO and CMO on 12/09.