Utility Systems Management Plan
EC 02.05.01; EC 02.05.03; EC 02.05.05; EPs 1, 3-5; EC 02.05.07; EC 02.05.09

I PURPOSE

The purpose of the Utility Systems Management Plan is to support a safe patient care and treatment environment at MCG Health, Inc. by managing risks associated with the safe operation and functional reliability of utility systems. The plan includes processes for selection, maintenance, and training that are designed to promote safe and effective use of utility systems while minimizing risks to patients and staff. The Utility Systems Management Plan applies to hospital functions at all designated MCG Health, Inc. locations:

II SCOPE

The scope of the Utility Systems Management processes include:

A. Preventive Maintenance programs and training of operational personnel on utility systems and contingency procedures along with emergency cutoff locations for electrical, domestic water, sprinkler systems, medical gases, and natural gas

B. The Zone Maintenance and Preventive Maintenance programs are the primary means to correct facility problems affecting utility system reliability

C. Documentation of unscheduled utility system interruptions and effective root cause analysis combined with programmed maintenance or engineering solutions are the key elements to reduce unplanned failures

D. Planned utility system upgrades and projects based on engineering evaluations have been implemented to improve the reliability of utility systems and facilitate the operations

E. Documentation, recommendations, support, and effective management procedures will aid in maintaining an effective Building Maintenance Program and assure 95% completion rate in all areas.

III FUNDAMENTALS

A. The size of the utility systems continues to expand. Selecting new or upgraded utility system technology requires research, a team approach and continuous improvement.

B. Patient care providers need appropriate information about utility systems to develop an understanding of system limitations, safe operating
conditions, safe work practices, and emergency clinical interventions during failures or other interruptions.

C. The Utility Systems Management Plan establishes processes for managing those aspects of utility systems or critical components of such systems that have a potential to harm patients or staff, or negatively effect the reputation of the Medical College of Georgia and MCG Health, Inc.

IV GOAL AND OBJECTIVES

The goals and objectives of this Utility Systems Management program have been established in the best interest of MCG Health, Inc. The Facilities Vice-President, Director, Managers, and employees are dedicated to the assurance and effectiveness of the best possible Utility Systems program. In collaboration with the Maximo System and Staff, Facilities Services operates 365 days a year, 24 hours a day, operating three shifts, working with a preventive maintenance and work order system that provides the utmost in service and reliability.

The following are examples of Facilities Services’ programs and expectations:

A. Promote a safe, controlled, and comfortable environment of care for patients, staff, visitors and employees.

B. Reduce the potential for hospital-acquired illness through the proper operation of utility systems and preventive maintenance programs.

C. Assess and minimize the risks of utility failures along with ensuring the operational reliability of the utility systems by identifying the opportunities to improve utility system performance and reliability.

D. Establish criteria for identifying, evaluating, and taking inventory of critical operating components of systems to be included in the utility management program. These criteria address the impact of utility systems on Life Support, Critical Care Branches, Infection Control Systems, Environmental Support Systems, Equipment-Support Systems, and Communications Systems.

E. Provide maintenance strategies for all critical components.

F. Intervals for inspecting, testing, and maintaining appropriate critical components on the inventory (i.e., those pieces of components on the inventory benefiting from scheduled activities to minimize the clinical and physical risks) that are based upon criteria such as manufacturer’s recommendations, risk levels, and current organizational experience.

G. Inspect, test, and maintain critical components of piped medical gas
systems, including master signal panels, area alarms, automatic pressure switches, shutoff valves, flexible connectors and outlets. The Master Signal panel will be monitored twenty-four hours a day by the MCG Health, Inc. Dispatch Center. All medical gas systems will be certified and tested by Medical Gas Specialists.

H. Testing piped medical gas systems when the systems are installed, modified, or repaired including cross-connection testing, piping purity testing and pressure testing. A comprehensive manual will be maintained by Facilities Services containing all certifications and tests.

I. Manage pathogenic biological agents in cooling towers, domestic hot water and other aerosolizing water systems. Annual maintenance of all cooling towers, closed loop systems, and other water systems will be performed by Anco Superior Water-Treating Services, a member of Anderson Chemical Company, Inc. All domestic hot water will be delivered to rooms throughout the facility at a temperature no greater than 120 degrees. The indoor and outdoor fountain at the lobby of the Children’s Medical Center will be maintained, tested and cleaned according to all recommended standards and records kept current by Facilities Services. All humidifiers will be maintained according to industry standards and a yearly preventive maintenance program conducted by Facilities Services.

J. Installing and maintaining appropriate pressure relationships, air exchange rates, and filtration efficiencies for ventilation systems that serve areas specially designed to control airborne contaminants (such as biological agents, gases, fumes and dust). Annual test and balances of all isolation rooms, operating rooms, labor & delivery rooms, cath labs and bone marrow rooms being performed by Tab Services of Atlanta, Georgia. Test and balance reports are submitted to the Facilities Services Director upon request, otherwise kept in centralized location within the department.

K. Develop and maintain current utility system operational plans to help ensure reliability, minimize risks, and reduce failures.

L. Map the distribution of utility systems and labeling of controls for a partial or complete emergency shutdown. A comprehensive manual is maintained and updated by Facilities Services, showing in detail all emergency cutoffs and distribution for electrical, domestic water, fire systems, medical gases, natural gas and emergency power.

M. Investigating utility systems management problems, failures, or user errors and reporting incidents and corrective action. The Facility Services Director along with the core shop managers maintain the “Unplanned Outages” manual, which explains all unplanned outages and provides detail of the outage and recommended corrections to prevent future
outages. A report is submitted to the Hospital Safety Committee as required.

N. An orientation and education program for each individual employee that address:

1. Utility systems’ capabilities, limitations, and special applications
2. Emergency procedures in the event of system failure
3. Information and skills necessary to perform assigned maintenance responsibilities
4. Location and instructions for use of emergency shutoff controls
5. Processes for reporting utility system management problems, failures, and user errors

O. Ongoing monitoring of performance regarding actual or potential risk related to one or more of the following:

1. Staff knowledge and skills
2. Level of staff participation
3. Monitoring and inspection activities
4. Emergency and incident reporting
5. Inspection, preventive maintenance, and testing of equipment

P. Emergency procedures for utility system disruptions or failures that address:

1. Specific procedures in the event of utility systems malfunction
2. Identification of an alternative source of essential utilities
3. Shutoff of malfunctioning systems and notification of staff in affected areas
4. Obtaining repair services
5. How and when to perform emergency clinical interventions when utility systems fail

Q. How an annual evaluation of the utility systems management plan’s objectives, scope, performance, and effectiveness will occur.

The information, which follows, provides information in detail regarding items A through Q, which describes the Utility System Management Plan of MCG Health, Inc. Facilities Services.

V ORGANIZATION AND RESPONSIBILITY

A. The Safety Director receives regular reports on the activities of the Utility Systems Management Program from the Safety Committee and Facilities Management. The Safety Director reviews reports and, as appropriate,
communicates concerns about identified issues and regulatory compliance.

B. The Vice-President of Facilities Services receives regular reports of the current status of the Utility Systems Management Program through the Safety Committee, Safety Director and/or Utilities Management Committee. The Facilities Services Director is responsible for submitting, as necessary, communications and or concerns about key issues and regulatory compliance to the Chair of the Safety Committee, the Chair of the E.O.C. Utilities Systems or other appropriate staff. The Vice-President collaborates with the Chairpersons of the Safety Committee, and Senior Management of MCG Health, Inc. to establish operating and capital budgets for the Utility Systems Management Program.

C. The Facilities Services Director works under the general direction of the Vice-President. This team is responsible for overall maintenance of the facility and management of contractors who are providing a variety of services. Corrective maintenance and repairs are done by work orders generated from hospital staff phone requests or identified by a proactive Zone Maintenance program. Inspection, testing, and preventive maintenance are performed as scheduled by the Building Maintenance Program.

D. Facilities Department Managers are responsible for orienting new staff to the department and, as appropriate, to job and task specific uses of utility systems.

E. Individual staff members are responsible for learning and following job and task specific procedures for safe utility system operation, maintenance, or use.

VI PROCESSES OF THE UTILITY SYSTEMS PLAN

(EC 02.05.01) The [organization] manages risks associated with its utility systems.

(EC 02.05.03) The [organization] has a reliable emergency electrical power source.

A. Operational Plans

The Facilities Director has overall responsibility for managing the process for establishing and maintaining operational plans for the Utility Systems Management Program. The Facilities Director and Managers are responsible for establishing and maintaining their departmental operational plans in conjunction with other department Managers, especially clinical
department Managers, as appropriate and where these other departments may be negatively impacted by a failure or other interruption to a utility system.

The responsible Manager for critical operating components of each utility system develops operational plans where a specialized need for these plans exists. Examples of specialized needs include: normal start-up procedure, normal operation procedure, normal shutdown procedure, emergency start-up procedure, emergency operation, or emergency shutdown. Examples of conditions where the specialized utility procedures are applied include: operation of emergency power generators, operation of back-up medical air systems, operating boiler on #2 fuel oil, medical gas problem, and electrical power failure.

Each Manager is responsible for maintaining working copies of operational plans in a location where their department staff has ready access and can refer to the plans when needed. For example, the Facilities Director maintains a master copy of the Facilities Services Policy and Procedure Manual and Emergency Operations Plan (EOP). Each Manager is responsible for providing their department staff with an orientation to the content of operational plans that relate to their job responsibilities. Additional department level training is provided on an annual basis as part of the continuing education process or on an as-needed basis whenever emergency procedures are revised. The Facilities Director is responsible for coordinating the overall review process and communicating information related to the findings of the review to the Safety Committee.

Each Manager is responsible for maintaining current operational plans. In accordance with the Administrative Policy Manual, each Manager is responsible for reviewing operational plans at least every three (3) years.

B. Criteria and Inventory

The Facility Services Director has overall responsibility for managing the process for establishing written policies and for performing an evaluation of critical operating components of each utility system against the criteria stated in the policies.

The Facilities department has established written policies, which are located in the “Facilities Services Operation Manual.” The Facilities Managers use the written policies to evaluate critical operating components of utility system that are within Facilities Services’ scope of responsibility. The Facilities Management team, through use of the Preventive Maintenance Policy, makes a determination if a component should be included in the Utility Systems Management Program inventory. The Preventive Maintenance Policy that is currently being used was
revised in July 2005. In accordance with the Facilities Services Management Goals and Objectives, written policies are reviewed at least every three (3) years.

Some examples of utility systems which have been evaluated against the written policies include: essential electrical distribution system (emergency power); normal electrical distribution system; elevators; heating, ventilation, and air conditioning system; plumbing; boilers and steam production; piped medical gases and vacuum; and communications systems, including overhead paging, Pneumatic Tube System and nurse call. Mandatory inclusion in the Utility Systems Management Program inventory include those utility systems located within patient sleeping or treatment areas and which play a role in life support, infection control, environmental support, equipment support, or communications.

Written policies exist as a practical, written tool on a form titled “Equipment Set-up Form”. This form is used by the Facilities Management team to perform evaluations and document findings. Components of utility systems, which meet the written criteria, are added to the Utility Systems Management Program inventory through the process of being entered into the Maximo computer maintenance system that is also used to develop a schedule of routine inspections and preventive maintenance. An equipment identification tag is applied to each critical operating component after it is included in the Utility Systems Management Program inventory.

The Facilities Director has overall responsibility for managing the Utility Systems Management Program inventory process. The Facilities Director and Managers are responsible for managing that portion of the database that applies to their scope of responsibility. Day-to-day use of the Maximo computer system allows additions, deletions, and other changes to the Utility Systems Management Program inventory to be accomplished in a timely manner, usually no more than a few days. This ongoing process of making changes allows the overall accuracy of the Utility Systems Management Program inventory to be maintained at a very high level at all times.

(EC 02.05.05) The [organization] inspects, tests, and maintains utility systems EP’s 1-5

(EC 02.05.07) The [organization] inspects, tests, and maintains emergency power systems.

(EC 02.05.07) The [organization] inspects, tests, and maintains medical gas and vacuum systems.
C. **Inspection, Testing, and Maintenance**

The Facilities Director has overall responsibility for managing the inspection, testing, and maintenance process.

As part of the acceptance process for new utility systems or upgrades to existing utility systems the contractor or vendor is required to demonstrate that the system and its critical operating components are fit for service by passing an acceptance/compliance test. Due to the wide variation of systems and components there is no standardized acceptance test. The specific parameters of performance must be determined for each test. All systems and components are tested prior to initial use. After MCG Health, Inc. has accepted the system or component from the contractor the responsible Facilities Director or Manager performs an evaluation to determine if it should be included within the Utility Systems Management Program inventory in accordance with Preventive Maintenance Policy. All utility systems or components, which meet the written criteria, are included in the inventory and the Maximo computer system is used to establish inspection, testing, and maintenance schedules.

The Maximo system is used to establish a schedule of programmed events that address the specific needs of each component with regards to inspection, testing, or preventive maintenance. Monthly generator testing of the backup generators is maintained both electronically in the maximo system and also written report which is reviewed monthly by the facilities director. Twelve times a year, at intervals of not less than 20 days and not more than 40 days, the hospital tests each emergency generator for at least 30 continuous minutes. Four hour testing of these generators is performed once a year. The completion date of the tests is documented. All generator testing is tested @ minimum of 30% of name plate rating with the exception of Children’s Medical Center Generators. CMC generators are load bank tested to meet lad requirements.

The Maximo system is used to generate work orders for each programmed event. Each Manager schedules and assigns work orders. Technicians perform assigned work orders and return completed work orders to their Managers. The completed work order is used to update the Maximo system to reflect that the work has been performed. Completed work orders are not routinely retained. Information entered into the Maximo system is used for historic documentation. Some scheduled work is actually performed by an outside contractor. Documentation of the contractors’ work and any required certifications are obtained by the responsible Facilities Director or Manager and reviewed and maintained by the Facilities Services Director. Any additional documentation that is supplied by an outside contractor is retained in files maintained by the contracting department.
The Facilities Director reports quarterly to the Safety Committee on inspection, testing, utility outages, Statement Of Conditions, and maintenance activities related to critical operating components of utility systems.

D. System Layout and Controls

The Facilities Director has overall responsibility for managing the process for documenting the layout of utility systems and the locations of critical or emergency controls for a partial or complete shut-down of the system.

The Facilities Director is responsible for maintaining a variety of historical documents that graphically illustrate each of the utility systems. Historical documents are being converted, as time allows, to computerized drawings.

E. Incident Reporting and Investigation

The Facilities Services Director has overall responsibility for managing the utility system incident reporting process.

The Utility Systems Management Program utilizes an “Incident” reporting form to document different types of incidents to the Safety Committee. Employees working the day, 2nd and 3rd shifts report utility system incidents directly to Facilities Director. All shifts are responsible for obtaining and filling out an incident report form and returning it to the Facilities Director.

The Utility system incident reports are directed to the Facilities Director. One of the goals of the incident reporting process is for the Facilities Director to receive reports of incidents within twenty-four hours of the occurrence. This goal is intended to set the stage for a timely investigation and to perform appropriate follow-up activities. The Facilities Director will complete the MCG Health, Inc. Incident Reporting Form, gathering all information along with one Work Order, which will be used to track the incident. The completed form and work order will be placed in the “Incident Reporting Manual”. These reports will then be reported to the Hospital Safety Committee every month at the regular scheduled meetings by the Facilities Director.

The Facilities Director and Managers are responsible for performing an analysis on those incidents, which are required to be reported to them, and for reporting the findings of such analysis to the Facilities Director who, in turn, provides a summary report on all utility system incidents to the Safety Committee. The utility system incident analysis is intended to provide an opportunity to identify trends or patterns that can be used to
determine if changes to the Utility Systems Management Program could control or prevent future occurrences. Summary information related to incidents and analysis of such incidents is reported to the Safety Committee to the Safety Director. Feedback from the utility system incidents is used to further develop and improve the Utility Systems Management Program.

F. Orientation and Education Program

The Human Resources Division Organization Development and Professional Learning Center and individual department Managers are responsible for managing the Utility Systems Management Program orientation and education process.

Every new staff member of MCG Health, Inc. must attend New Employee Orientation Program, which includes general information on hospital safety and utility systems. New Employee Orientation is provided by the Human Resources Division Organization Development and Professional Learning Center.

The Hospital and Clinics Managers are responsible for providing department specific training on Utilities Safety as part of the MCG Health, Inc. Employee Orientation Checklist. Examples of such information include: Process for reporting problems, Procedures for maintaining essential functions during utility failures, Location of emergency shut-off controls and process to follow if the Alarm procedures for elevator malfunctions, and Communication equipment protocols.

G. Performance Monitoring

The Facilities Director has overall responsibility for the Utility Systems Management Program performance improvement standard process.

The Facilities Director is responsible for establishing and developing performance improvement standards, which objectively measure the Utility Systems Management Program. Human, equipment, and programmatic characteristics are evaluated by the Facilities Director with the goal of improving the organizational performance of the Utility Systems Management Program. The primary source of data is from the Maximo computer system. The Facilities Director, Managers and PM Coordinator participate in monitoring and data collection. Results of monitoring and data collection are documented in the monthly report and are available for viewing by the Vice-President.

The Facilities Director reports annually on performance improvement standard data to the Safety Committee. The Safety Committee also
receives and reviews information related to performance improvement standards through the annual evaluation of the Utility Systems Management Program.

A performance improvement standard has been established that measures an important aspect of the Utility Systems Management Program. The performance improvement standard that has been established for the Utility Systems Management Program is: > 95% if Utility Systems Management completed on time using a twelve month rolling average. The Maximo System of Facilities Services will continue to track and implement preventive maintenance work orders for the Building Maintenance Program.

H. Emergency Procedures

The Facilities Director has overall responsibility for coordinating activities related to establishing and maintaining emergency procedures for the Utility Systems Management Program. These procedures are located in the “Facilities Services Operation Manual.” Each Manager is responsible for developing their departmental emergency procedures in conjunction with other department Managers, especially clinical department Managers, as appropriate and where these other departments may be negatively impacted by a failure or other interruption to a utility system.

Each Manager is required to structure the content of their departmental procedures to ensure that each procedure is thorough, comprehensive, and provides staff with the essential information they need during an emergency. Emergency procedures contain certain specific procedures to be followed in the event a utility system failure, interruption, or malfunction. Emergency procedures contain an identification of alternate sources of essential utilities or an identification of redundancies or other back-up protection that is provided. Where alternate sources, redundancies, or back-up protection is not available the emergency procedure indicates steps to be taken until the utility system can be restored to normal. Emergency procedures contain specific information related to the location of essential or emergency controls to shut-off utility systems.

Each Manager is responsible for maintaining working copies of emergency procedures in a location where their department staff has ready access and can refer to the emergency procedure during an emergency. For example, the Facilities Director maintains a master copy of the Emergency Operations Plan (EOP) and the Facilities Services Policy and Procedure Manual. Each Manager is responsible for providing their department staff with an orientation to the content of emergency procedures that relate to their job responsibilities.
Each Manager is responsible for maintaining current emergency procedures. In accordance with the Facilities Services Goals and Objectives, each Manager is responsible for reviewing emergency procedures at least every three (3) years. The Facilities Director is responsible for coordinating the overall review process of emergency procedures and communicating information related to the findings of the review to the Safety Committee.

I. Annual Evaluation

The Chair of the Safety Committee has overall responsibility for coordinating the annual evaluation process with each of the seven functions associated with Management of the Environment of Care. The Facilities Director has overall responsibility for coordinating the annual evaluation of the Utility Systems Management Program.

In performing the annual evaluation the Facilities Director utilizes a variety of source documents such as: Maximo system reports, utility outage reports, incident report summaries, meeting minutes, safety committee reports, or statistical information summaries. In addition, the Facilities Director may also review or consider other relevant sources of information such as: results of monitoring studies, reports from accrediting and certification agencies, or program goals and objectives. The annual evaluation of the Utility Systems Management Program is used as an opportunity to further develop or revise utility system education programs, utility system related policies and procedures, and utility system performance improvement standards. An evaluation of Utility Systems Management Program objectives, scope, performance, and effectiveness is included in each annual evaluation. The findings of the annual evaluation are documented in a written narrative report. Included with the report are any recommendations for improvements to the Utility Systems Management Program that have been developed by the Facilities Director.

The annual evaluation is presented to the Safety Committee for review and approval by the end of the first quarter each year. Receipt of the annual report is documented in Safety Committee minutes. Review by the Safety Committee includes discussion of findings and recommendations.

CC: Safety Committee (Reviewed & Approved- December 2008)
JCC to Board (Reviewed & Approved- February 2009)
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