1.0 PURPOSE

To define the general roles and responsibilities of the Facilities Maintenance and Engineering (FME) personnel.

2.0 GENERAL

This procedure defines the roles, responsibilities and authorities of the organizational elements and key staff positions relative to the execution of work orders received from directorate customers. Specific details of supporting execution processes and responsibility for these processes will be defined in either FME Management Directives, issued under the FME Directors signature, or through FME functional procedures issued under the signature of those managers reporting directly to the FME Director.

2.1 FME MISSION

The mission of the Facilities Maintenance and Engineering Directorate (FME) is to efficiently provide the facility maintenance, planning, engineering, design and construction services required to successfully support the science mission of the National Cancer Institute at Frederick, Maryland (NCI) research community. The FME organization is designed to:

- Maintain a Zero Accident Safety Program
- Provide overall leadership, management and resources to accomplish its mission
- Provide long range planning for infrastructure improvements
- Provide input and resources to support overall facility and space management
- Perform routine facility preventative and corrective maintenance
- Provide technical advice on Laboratory planning and design options
- Provide special assistance on design and fabrication of Laboratory support equipment
- Provide equipment calibration services
- Operate a trouble call service center to report facility problems
- Provide day-to-day building management
- Provide design architectural and engineering services
- Provide construction management and construction craft supervision
- Provide limited in-house construction capability
- Negotiate and achieve realistic budget, schedule, quality, and safety objectives with NCI
- Communicate status of FME efforts to NCI – Frederick on a monthly basis
- Develop and maintain Quality Standards

The FME organization is strategically aligned to meet Customer requirements through project teams under long-term assignment to either SAIC-Frederick Directorates or directly to a collection of NCI programs and laboratories. For major projects such as the VPP Construction, separate project teams have been formed. FME is functionally structured to technically support each of the teams with project management, engineering management, engineering design, construction management and limited in-house construction expertise and capability. The remaining functional responsibilities required to complete its mission such as Construction Contracting and Finance and Accounting, however, do not report directly to FME but remain aligned to the SAIC/Frederick Organization and provide support to FME. Those functions, provided from the Contracts and Administration Directorate, do have a

daily reporting and task-activity responsibility to FME and the customer-focused Directorate Support Teams. The FME organization is depicted in Attachment 1.

2.2 FME PROJECT TEAM DESCRIPTIONS

The National Cancer Institute at Frederick is comprised of 25 separate laboratories, divisions, programs and branches involved in both leading edge cancer and HIV/AIDS research. In their support role as the Operating and Technical Services contractor, SAIC-Frederick is divided into six operating Directorates. Each Directorate has a unique and specific mission with correspondingly unique and specific necessities, requirements and schedule timetables. The Facilities Maintenance and Engineering Directorate (FME) has aligned its organization, departments and work process to address the NCI needs either directly to an NCI customer or through one of the SAIC Directorates. The major responsibilities of each of these customer-focused teams is to efficiently expedite the completion of Work Orders (WO), to communicate project progress, and to serve as a single point of contact, to fully understand and meet the priority requirements of their customers. In order to fulfill the requirements from both the NCI- and SAIC-Frederick community, FME has established the following seven teams, however in an effort to levelize the workload among Project teams, PM's and their support teams may be assigned work orders outside their normally assigned directorates if workload dictates:

- Basic Sciences (BS)
- CCR High Priorities (CCR-Hot)
- Applied/Developmental Research Support (AD)
- Biopharmaceutical Development Program (BDP)
- Office of the Director and Business Operations (OD)
- Research Technology Program/ Laboratory Animal Sciences Program (RTP/LASP)
- Vaccine Pilot Plant (VPP)

For AD, BDP, RTP/LASP projects, the FME project manager's direct counterpart is a SAIC Research Director. In this case, the project team serves as a Directorate Support team, where the project manager and the team become intimately familiar with the needs of multiple scientific programs managed under a single SAIC Director.

The OD project manager interfaces directly with the NCI Scientific Operations Manager while the BS and CCR-Hot project managers must deal with multiple, diverse NCI investigators. An exclusive project manager controls large singular projects such as the VPP.

The Project Manager leads their team and serves as key contact to either the NCI or SAIC customer. Operationally, the project teams report through the project managers to the FME Manager of Projects.

FME has selected each project team member with skill sets that correspond to the unique requirements of each customer set of projects. This creates a project team dedicated and committed to the projects and priorities for that particular customer. Attachment 2 shows the current Project Teams Matrix. Attachment 3 shows the specific and unique roles, responsibilities, authority and accountability of the Project Team (R2A2).

2.3 FME PROJECT WORK BREAKDOWN STRUCTURE

Each integrated project team is made up from several process functions, supported by additional FME and SAIC-Frederick functional departments. The team is structured to meet the requirements and to accomplish all the activities and has all responsibilities necessary to plan, schedule, estimate, design, construct and complete projects. Tasks or skills required outside the core capabilities of FME will be outsourced through subcontracting.

A project team may be composed of any or all of the following; a Project Manager, an Assistant Project Manager and/or Engineering Lead, associated Building Managers, a Construction Superintendent/Manager (COTR), an in-house Renovation Crew, and Engineering Group generally composed of Mechanical, Architectural, Electrical, Fire Protection and Civil/Structural engineers. ALS representatives, EHS representatives and the directorate customer as well as a designated NCI representative. (See Attachment 2)

Each Project Manager is ultimately responsible for the development, planning, and execution of all assigned work orders and for periodic reporting of progress, status and problems to his or her customer. The responsibility includes all activities accomplished by the team from WO inception to final acceptance and project sign-off including the development of all NCI approval documents for work orders, such as Conceptual Approval, Fiscal Approval, Design Approval and Final Acceptance documents.

2.4 FME QUALITY MANAGEMENT

FME strives to deliver high quality designs, construction and on-going operations to the NCI community through a formal Quality Management System. The system is formed through a multi-tiered program of policies, procedures and work instructions. The FME Quality Manual forms the basis of the Quality Management System and is modeled after the spirit of ISO 9001, 1994. The manual outlines the management responsibility for quality and consists of the following of Quality System Policies:

- Contract Review
- Design Control
- Document and Data Control
- Purchasing
- Control of Customer-Supplied Product
- Product Identification and Traceability
- Process Control
- Inspection and Testing
- Control of Inspection, Measuring and Test Equipment
- Inspection and Test Status
- Control of Nonconforming Product
- Corrective and Preventive Action
- Handling, Storage, Packaging, Preservation and Delivery
- Control of Quality Records
- Internal Quality Audits
- Training

- Servicing
- Statistical Techniques

2.5 FACILITY PROJECT STATUS REPORT (FPSR)

The FME reporting capability provides accurate project status reporting to manage and supervise the planned work, schedule work execution, develop work team approaches, measure performance and execution results. Timely accurate reporting and communication is key to effectively manage changed conditions to minimize adverse impacts to the quality, cost or delivery of the projects.

Reports confirming customer priorities, project status, and cost performance are communicated monthly through the Facility Project Status Report (FPSR) to the NCI Contacting Officer, the NCI Administrative Manager, involved NCI Investigators and individual SAIC Directors.

3.0 ROLES, RESPONSIBILITIES AND AUTHORITIES

The following identifies the roles, responsibilities and authorities for each group or discipline within and outside the FME Directorate. This identifies the minimum duties each individual is responsible to carry out in the completion of work orders. It also identifies the assist responsibilities from the FME Functional Organization that will support the Project Manager and the Project Team.

3.1 DIRECTOR

The Director is the single point of contact for the NCI Office of Director and sole source of responsibility and accountability for work and projects assigned to FME. The Director delegates responsibility and authority to the Deputy Director, Manager of Administration and Controls, Manager of Engineering, Manager of Projects, Manager of Operations and Maintenance, Manager of Construction and to the Project Managers and their teams to accomplish their WO milestones and deliverables, control their costs, and ensure safe and compliant work.

The Director reports to the President and Principal Investigator for SAIC-Frederick.

3.2 DEPUTY DIRECTOR

The Director delegates responsibilities, duties and authority to the Deputy Director. The Deputy is responsible for establishing business procedures, formulating operational program plans, instituting and managing corrective actions and developing and maintaining a performance metrics. The Deputy works closely with the Director to develop short and long term range goals for the organization. The Deputy Director serves as FME Director in absence of the Director.

3.3 MANAGER OF PROJECTS

The Manager of Projects (MOP) reports to the Director. The MOP is responsible for coordination of the Project Teams with support from SAIC Construction Contracts and Finance & Accounting (F&A). The MOP provides

guidance and management expertise to the Project Teams and sits as Chair Person on the Work Order Review Meeting (WORM). All Project Managers report directly to the Manager of Projects.
The MOP is also responsible for maintaining overall communications and customer relations at the Project Operations level. This includes resource coordination between the Project Teams, Engineering, and SAIC Construction Contracts.

3.3.1 Construction Administrator (CA)

Each Construction Administrator (CA) is responsible for coordinating and planning of all subcontracted construction activities for a Project Team. The CA reports functionally to Manager of Projects and Construction and operationally to the individual Project Managers (PM). They are the liaison between FME Engineering, Construction Contracts (CC), the Renovation Crew and/or Subcontractors. Their role is vital during the execution of physical construction work. The Construction Manager receives, tracks, and ensures response to Requests for Information (RFIs) for all outsourced tasks and activities. Their role in this capacity is to provide a liaison between field progress and the PM, the Engineering team, and CC.

The CA ensures compliance with the approved plans, specifications, and the scope of the WO conformed scope or statement. CA serves as the owner's representative's primary point of contact during the construction phase of the WO project, acting as a liaison between subcontractor and FME Engineering, the various maintenance shops, the Fort Detrick Garrison (Army), various Building Managers and the resident NCI Customers.

The CA is responsible for ensuring that subcontractors comply with the contract documents. As the Contracting Officer's Technical Representative (COTR) they are authorized to advise subcontractors when their work does not conform to contract requirements and therefore will be rejected and not paid for until corrected. Facts surrounding any notice of rejection of work for non-compliance with the contract will be promptly conveyed to the CC subcontract specialist so that the subcontractor can be provided appropriate written notice of said rejection. The CA is also authorized to immediately suspend work that is being conducted in a manner that exposes any individual to a life-threatening situation if the subcontractor fails to take prompt corrective action when the situation is pointed out to them by the COTR.

Duties include but are not limited to:

- Monitors assigned construction projects for work performed by subcontractors
- Assists in design reviews and attends review meetings, providing input for constructability and program requirements
- Attends and participates in pre-bid meetings and conducts site tours and assists in preparing minutes as required
- Participates in subcontractors technical evaluations if applicable
- Attends and participates in pre-construction meetings and assists in preparing minutes as required
- Checks equipment, materials, and supplies to be utilized for compliance by the subcontractor with the approved plans, specifications and shop drawings
- Participates in RFI response preparation with A&E and/or Project Manager, providing technical, constructible, and operational input.

- Reviews potential change orders with subcontractors, prepares draft technical scope and assists the Project Manager in review of change orders for accuracy, validity and cost.
- Receives and reviews subcontractors daily report forms, daily hot work permits, and safety inspection reports.
- Performs periodic walk-thru inspection of project site for quality compliance, safety observation, submittal compliance, coordination concerns, policy adherence, schedule adherence, potential conflict resolution, observation of unforeseen/existing conditions, drawing and specification interpretations, witness of tests or inspections, and verification of test results.
- Assess proper operation of systems during the commissioning and acceptance test phases, in conjunction with the appropriate engineers.
- Identifies routing and locations of various utilities for connections, shutdowns, and coordination with the Building Managers, for all affected parties.
- Performs weekly reviews of subcontractor's red lined field drawings for completeness and accuracy.
- Schedules and conducts bi-weekly progress meetings. If the contract for project requires that the A&E or subcontractors conduct meetings, attends and participates in these meetings.
- Prepares quarterly evaluations of the subcontractors for workmanship and other compliance issues in provided inputs to the final evaluation. Reviews these evaluations with Project Managers, the Construction Contracts department, and with the subcontractors.
- When requested by the subcontractor or if deemed necessary, attends and participates in the subcontractors coordination and scheduling meetings.
- Keeps Project Managers apprised of all ongoing project activities and the issues/changes that may arise.
- Reviews with subcontractors their invoicing status, and monitors and reviews the subcontractors written applications for payment.
- Assists CC subcontract specialist with on site wage compliance interviews of subcontractor's workforce.
- Develops or assists in the development along with the A&E and Project Manager, the project punch list preparation and verification of work completed.
- Coordinates for training, Startup, O&M walkthroughs, and acceptance with FME personnel, Garrison staff and scientific managers.
- Administers all subcontractor and supplier warranty requirements for a period of one (1) year after project acceptance for completeness, upon determination from Operations and Maintenance, that an issue is the responsibility of the subcontractor.
- Assists the program/end user with equipment requirements and interfaces with the move-in/retro fitting of equipment into new space.
- Receives and verifies the closeout requirements for deliverables, spare parts, extra stock, and O&M manuals.
- Checks A&E's final as-builts for completeness and accuracy.
- Provide assistance and support to Project Managers and to the program end-users as requested.

CA is responsible for ensuring that there is a clear definition of responsibilities for all work that is accomplished at the job-site between in-house resources and subcontracted work forces.

3.4 PROJECT MANAGERS

Project Managers have overall responsibility for the execution of WO projects from conceptual estimate and design through execution, final close out and NCI Acceptance. Responsibilities include the following:

- Day-to-day leadership of their project team
- Customer relations
- Work order project planning, budgeting, and execution including Conceptual and Fiscal Approval documents
- Defining their resource requirements and initiating arrangements and coordinating requirements with other entities involved in completing work orders
- Developing man-hour budgets and overall project costs and assuring change control is implemented
- Budget, Technical Scope and Schedule Baseline development, maintenance and performance monitoring including the Facility Project Status Reports (FPSR)
- Subcontractor and in-house craft management through the Construction Manager
- Change control
- Project Safety Performance
- Implementing policies and procedures, as necessary to achieve completion in accordance with objectives related to quality, cost and schedule. Also, establishes such additional, specific requirements as necessary
- Consulting with appropriate FME Management regarding unique design problems and/or other problems that are likely to significantly impact project scope, budgets, schedules, or other commitments.
- Maintaining close liaison with other project entities, including Engineering Manager, Project Controls and the Manager of Projects.
- Perform interim evaluations and an overall performance assessment of an Architect Engineer in accordance with the FME procedure FMP-G-0065, Architect/Engineer Performance Evaluation.

Project Managers are expected to clearly define the scope of each WO with their Customers, to fit each project into a mutually agreed prioritization, to produce a realistic baseline budget and schedule for each work order, and to deliver a quality project at the committed time. They are expected to define goals (expectations) for and monitor performance of members of their project team during the WO plan execution. Project Managers are responsible for approving purchase orders within their delegated authority. Project Managers are expected to work with the functional managers to assess assigned staff performance and to alert senior management of any performance problems. They are also expected to provide early feedback on staffing or de-staffing requirements.

Project Managers are responsible for drafting all correspondence to the NCI. They will then initial and forward to the Manager of Projects for FME review, approval and signature.

Project Managers have the authority to delegate project responsibilities to any member of their project team with the understanding that overall performance remains with the Project Manager. The Project Manager has the authority to provide technical direction within the contracted scope to assigned subcontractors but may not give direction that alters the scope, schedule or budget for a subcontract without SAIC Construction Contracts' prior approval.

3.5 ASSISTANT PROJECT MANAGER

As assigned by the Project Manager, The Assistant Project Manager (APM) has delegated responsibility for any or all aspects of project execution for assigned WO's. The APM may be assigned separately or may be a member of the project team with the concurrence of the Manager of Projects and the Manager of Engineering.

3.6 MANAGER OF ENGINEERING

The Manager of Engineering (MOE) reports to the Director and is responsible for*:* FME engineering standards and procedure; recruiting and training engineering resources that support the project team; quality reviews and audits of the products produced by the Engineering staff and Lead Engineers; and documenting and reviewing lessons-learned specific to engineering and design with the engineering staff.

He will support the planning and acquisition of engineering resources in support of the project teams and the FME mission. When necessary the MOE may act as the project team Lead Engineer for complex technical projects.

The Manager of Engineering will support the project teams in preparation of their engineering plans and cost estimates. He is responsible for developing the Design Review procedures and qualifying lead engineers as Design Review Chairman. The Engineering manager will, in many cases, serve as the Chairman for design reviews. The MOE will also assist with 'independent' engineering estimates to validate subcontractor scope or change requests. He is responsible for development of the Estimating processes and procedures that apply to in-house and subcontractor estimates for engineering.

Specialty engineering and technical support resources, such as drafting, will report directly to the MOE.

The MOE, with input from the PMs, MOP, Director and Deputy Director, will develop the performance measures for the engineering staff and perform the annual performance appraisals of the engineering staff.

3.6.1 Project Engineering Lead

Each Project Team has an Engineering sub-team responsible for the design, engineering and constructability of WO scopes. Each engineering team is headed by an Engineering Lead reporting directly to the Project Manager for WO scope and is functionally aligned to the Manager of Engineering for technical and quality direction. Each Engineering team is composed of a set of engineers who report through the Engineering Lead to the Project Manager. The dual engineering reporting matrix allows the engineering team to be responsive to the unique requirements of their customers while ensuring facility design standardization through a set of standardized engineering requirements and specifications. The functional side of the reporting matrix also ensures formal engineering work processes, provides for configuration control of site and facilities infrastructure and also guarantees work product reviews take place.

The Engineering Lead is responsible for coordinating the engineering and design work within the Project Team matrix for assigned projects. The Project Manager may delegate this responsibility on a project specific basis with the concurrence of the Manager of Engineering. This delegation may vary according to the work scope for a WO. For example, if the majority of work required involves the installation of critical mechanical equipment, then the

Mechanical Engineer may be Engineering Lead for that WO. The Engineering Lead is responsible for ensuring that all designs and engineering calculations are checked independently for completeness and accuracy either on-off project. The Engineering Lead is also responsible for coordinating any new design work with the Building Managers to ensure that any new work can fit within the existing infrastructure of the facility.

The Engineering Lead is responsible for ensuring that all engineering performed on a work order project is completed within the agreed project-engineering budget and schedule and conforms to engineering standards established by the Manager of Engineering.

For all work, the Engineering Lead is responsible for the following:

- Preparing or preparing input to the Project Manager for developing scope of work, a man-hour budget, and making revisions as required. Responsible for coordinating the development of man-hour budget at nominal 15% design stage.
- Advising the Manager of Engineering of manpower requirements, project progress, and special problem areas.
- Providing input to the Project Manager for developing and updating schedules, in a timely manner. This includes communicating with the Project Manager on issues affecting scope, schedules, and budgets.
- Coordinating Project Reviews, including Review Meetings, for both in-house and out-sourced design.
- Initiate “Lessons Learned” at the completion of the project.
- Preparing or providing input to project correspondence for signature of Project Manager, and acting on incoming correspondence.
- Detecting possible scope changes resulting from client requests or any other reason and assessing the impact of these on cost and schedule, and reporting same to the Project Manager.
- Coordinating with Client representatives, as delegated by the Project Manager, to communicate requirements and obtain approvals, to the extent consistent with the existing procedures.
- Coordinating with working level representatives of other entities.
- Accompany / Assist Project Manager in Customer and Construction Meetings as required.
- Verifying that the work performed is done in a professional manner and in compliance with applicable procedures.
- Assisting in preparing Conceptual and Fiscal Approval Estimates for area of responsibility.

For subcontracted design work, the Engineering Lead is responsible for ensuring adequate review of the technical subcontract specifications to ensure that the subcontracted work meets overall project technical and quality requirements. During the execution phase of the subcontract, the Engineering Lead is responsible for coordinating review of all subcontractor submittals for completeness and for responding to all Requests for Information (RFI’s) issued by subcontractors and for ensuring that subcontracted work is complete and meets contracted performance standards.

During the detailed design phase, the Engineering Lead is responsible for ensuring that each discipline engineer performs the following:

- Determining the methods and practices to be used in the design. Performing walkdowns to determine existing conditions and to determine design details.

- Developing data required for design, including studies, analysis, engineering estimates, and design calculations.
- Coordinating design and otherwise resolving interface problems with other groups.
- Preparing and checking drawings and specifications and interpreting their intent where necessary.
- Preparing updated drawings to the as-built conditions from field markups, or reviewing those prepared by others, if required. This includes walkdowns to assure the installation is as per design.
- Preparing input to purchase, contract, and subcontract documents for bids. Evaluating bids and recommending suppliers, contractors, and sub-contractors.
- Reviewing and providing status to engineering and quality verification documents and change orders submitted by suppliers and subcontractors, as required.
- First level of design checking at the various review and completion points.
- Insure design meets requirements of all applicable codes and standards.

Finally, the Engineering Lead is responsible for verifying that work performed is done in a professional manner and in compliance with applicable procedures.

3.6.2 Mechanical Engineers

Mechanical Engineers are responsible for the design and specification of mechanical systems and components installed as part of the WO project. They are responsible to the Project Team to ensure that their work is coordinated with and configured to work within the overall project design and conform to established engineering standards. For example, Mechanical Engineers must account for the heat load of any new proposed equipment and processes in the design of new or modified HVAC systems. They are responsible to review any existing facility infrastructure to ensure that new work can be accommodated within the existing capacity of the system or design adequate additional capacity. They are responsible to the Project Manager and the Project Team to deliver all mechanical engineering and design work within their approved budget and schedule.

For subcontracted design work, Mechanical Engineers are responsible for reviewing mechanical specifications to ensure that the subcontracted work meets overall project requirements. They are also responsible as assigned to review and check subcontract submissions to ensure that the submittals meet the requirements of the subcontract and conform to established engineering Standards.

3.6.3 Electrical Engineers

Electrical Engineers are responsible for the design and specification of electrical systems, controls and components installed as part of the work order project. They are responsible to the Project Team to ensure that their work is coordinated with and configured to work within the overall project design and conform to established engineering standards. For example, Electrical Engineers must account for the electrical load of any new proposed facilities, equipment and processes in the design of new or modified electrical service. They are responsible to review any existing facility infrastructure to ensure that new work can be accommodated within the existing capacity of the electrical load centers or design to provide adequate additional capacity. They are responsible to the Project Manager and the Project Team to deliver all electrical engineering interfaces and design work within their approved budget and schedule.

For subcontracted design work, the Electrical Engineer is responsible for reviewing electrical specifications to ensure that the subcontracted work meets overall project requirements. The Electrical Engineer is also responsible as assigned to review and check subcontract submissions to ensure that they meet the requirements of the subcontract and conform to established engineering Standards.

3.6.4 Architects & Designers

Architects and Designers are responsible for design of interior spaces and for specification of interior finishes and components installed as part of the work order project. They are responsible to the Project Team to ensure that their work is coordinated with and configured to work within the overall project design and conform to established engineering standards and approved finish schedules. They are responsible to the Project Manager and the Project Team to deliver all interior designs and finish schedules within their approved budget and schedule.

For subcontracted design work, the Architects and Designers are responsible for reviewing interior design specifications to ensure that the subcontracted work meets overall project requirements. The Architects and Designers are also responsible as assigned to review and check subcontract submissions to ensure that they meet the requirements of the subcontract and conform to established building and engineering Standards.

3.6.5 Civil/Structural Engineers

Civil Engineers are responsible for the design and specification of civil works, structures and utility systems installed as part of the work order project. They are responsible to the Project Team to ensure that their work is coordinated with and is configured to work within the overall project design and that it conforms to established engineering standards. For example, Civil Engineers must account for the impact any new equipment and processes have on the load bearing capacity of existing floor and roof structures in the design of new or modified facilities. They are responsible to the Project Manager and the Project Team to deliver all civil and structural engineering and design work within their approved budget and schedule.

For subcontracted design work, the Civil Engineers are responsible for reviewing civil specifications to ensure that the subcontracted work meets overall project requirements. The Civil Engineer is also responsible as assigned to review and check subcontract submissions to ensure that they meet the requirements of the subcontract and conform to established engineering Standards.

3.6.6 Engineering Capabilities

Engineers and Designers of all disciplines are versed in cGMP requirements, BL-2, BL-3, and BL-4 Laboratory design standards, Pharmaceutical Processes, Animal Facility Barrier design techniques, and Ergonomic design criteria. Engineering calculation-modeling software packages are used to efficiently examine various options for mechanical/electrical designs.

Drawings are produced on AutoCAD software that is routinely upgraded. Drafting personnel are trained in AutoCAD including the use of 3D CADD for interior design renderings. A central file system for renovation and record drawings is maintained and organized through a drawing database. Digital photos can be incorporated on our design drawings to clarify construction design details.

The Engineering Department maintains a standard specification database with over 200 specifications. The Drafting Group has access to databases that contain standard drafting standards, symbols, and design details. Floor plans and physical data for approximately 110 buildings are routinely updated and published for use by management and facility planners.

3.7 MANAGER OF OPERATIONS & MAINTENANCE

The Manager of the Operations and Maintenance (O&M) Department reports to the Director of Facilities Maintenance and Engineering. The O&M Manager is responsible for the operation and maintenance of NCI-Frederick buildings and the associated infrastructure. Additional responsibilities exist at four off-site facilities within the City of Frederick, the degree of which varies at each location as a function of the lease agreement. In addition to operations and maintenance, the O&M Department provides space renovation and equipment installation services to the various NCI-Frederick laboratory, animal science and support programs. The O&M Department supplies construction phase leadership, qualified craft resources, cost estimates, tools, vehicles and the necessary equipment to complete renovation and equipment installation projects.

The FME Managers of Projects, Administration & Controls, Engineering and O&M coordinate resources to meet the responsibilities of each department and the overall objectives of the FME Directorate.

3.7.1 Renovation Crew Leads and Work Crews

The Crew Lead is responsible for the construction phase of space renovation and equipment installation projects. Their responsibilities include work site safety, daily planning and direction, site surveying, craft management, customer interface, participation in design review, engineering interface, initiation of trends and execution of projects within approved cost and schedule. A Crew Lead may be a Shop Supervisor or specially designated craftsman. Crew Leads report construction progress and conduct trend transactions with the Project Manager and resolve technical issues with the project engineering staff.

Work crews consist of a core group of craftsman with individual electrical, plumbing and carpentry skills. Work crews are supplemented throughout the project with the various in-house crafts and/or outsourced services as needed to complete each construction activity in proper sequence.

3.7.2 Craft Shop Supervisors

Shop Supervisors report to the Manager of O&M. Their technical responsibilities include shop/work site safety, supervision, work planning, cost estimating, resource coordination, customer interface and executing assigned work orders. They are also responsible for maintaining hand tools, service vehicles, shop equipment and procurement of materials & supplies to complete approved assignments. Supervisory responsibilities include assessing performance, capabilities and experience of assigned staff and the subsequent development of training plans.

3.7.3 Building Coordinators

Shop Supervisors report to the Manager of O&M. Their technical responsibilities include shop/work site safety, supervision, work planning, cost estimating, resource coordination, customer interface and executing assigned work

orders. They are also responsible for maintaining hand tools, service vehicles, shop equipment and procurement of materials & supplies to complete approved assignments. Supervisory responsibilities include assessing performance, capabilities and experience of assigned staff and the subsequent development of training plans.

3.7.4 Work Coordinators

Work Coordinators report to the Manager of O&M. Each Work Coordinator performs a different function within the department.

The Work Coordinator for Preventive Maintenance is responsible for utilizing the Computerized Maintenance System (CMS) to structure preventive maintenance (PM) activities for all shop operations having equipment maintenance responsibilities. The coordinator uses the CMS to generate all PM work orders/checklists and maintains the underlying CMS Equipment file information.

The Work Coordinator for Contracted Services is responsible for scheduling, coordinating and overseeing a range of contracted services as part of a larger project or standalone activity. Related responsibilities include customer interface, work order close out, file documentation and approval of contractor invoices.

The Work Coordinator for in-house Planned Work (>$5K) projects is responsible for assigning Crew Leads to individual projects, coordinating and monitoring cost estimation activities, scheduling work, conducting weekly resource coordination meetings, acting as a general POC for Project Managers and customers and providing oversight to all Planned Work activities in department.

3.7.5 Trouble Desk Operators

Trouble Desk operators report to the Manager of O&M. They are responsible for taking customer telephone calls, email or facsimile transmissions that report facility problems or seek assistance with repairing laboratory or office equipment. The Trouble Desk also acts as a point of reception for customer service requests costing less than $5K. Examples include equipment installations & setup, minor space alterations, shelves and window blinds, fabrication of custom laboratory devices and general labor assistance. All requests are entered in the CMS and routed to the appropriate shop operation for action.

3.7.6 Control Systems Engineer

The Control Systems Engineer reports to the Manager of O&M and is responsible for the managing the system to include the following.

- System configuration management
- Change control, as-built drawings and system documentation
- Programming and testing of new control sequences and alarm structure
- Advanced troubleshooting of software, firmware and hardware
- System Security – maintain passwords and user levels
- User training
- Data backup
- Equipment performance trending and reporting

- Routine audits and testing
- SOP development and implementation
- Energy consumption monitoring and reporting
- Support design process and long range planning
- Support calibration, commissioning and validation
- Support software, firmware and hardware upgrades
- Special applications, reports and assistance to cGMP facilities and animal facilities

3.7.7 Custodial Services Supervisor

The Custodial Supervisor reports to the Manager of O&M. The supervisor is responsible for supplying resources and overseeing routine cleaning and trash removal from office and laboratory facilities at NCI-Frederick. Certain medical waste is autoclaved by Custodial Shop personnel and placed in central building receptacles for pickup and disposal. The shop supervisor works closely with Environmental Health and Safety personnel to develop and implement cleaning and trash removal procedures for laboratory and animal holding facilities.

3.7.8 In-House Craft Capability

The O&M Department possesses a wide range of in-house craft capabilities listed below.

Electrician
Biological Safety Cabinet Specialist
Millwright
Tool & Die Maker
Pipe Fitter
High Purity Water System Technician
HVAC Mechanic
Refrigeration Mechanic
Material Handling Laborer
Pest Controller
Tool Room Attendant
Woodcraft Worker
Painter
Locksmith
Telecommunication Mechanic
Instrument Technician
Calibration Technician
Sheet Metal Mechanic
Welder
Insulator
Machinery Maintenance Mechanic

3.7.9 Contracted Services

In addition to in-house craft capabilities, contracts have been established to deliver vendor services needed to support renovation projects, emergency & routine maintenance activities as well as supplement in-house resources during peak work periods.

Carpet & vinyl flooring installation
Epoxy flooring installation
Painting
Roof system repair
Elevator service and repair
Landscaping periods.
Hoist inspection and repair
Plumbing inspection and repair
Inspection, testing and maintenance of fire detection and suppression systems

3.7.10 Material/Tool/Equipment Inventory

The O&M Department has a Tool Room component that issues/tracks specialty tools and equipment for use by all shop operations. The Tool Room also maintains an inventory of hardware, fasteners and safety equipment for issue. Tool Room Attendants report to the Supervisor of the Support Shop.

An inventory of plumbing, electrical and mechanical parts are kept in the Maintenance Supply Warehouse, Building 1050. Inventory items are qualified and quantified by O&M Shop Supervisors, based on their craft activities and/or equipment responsibilities, and maintained by ALS personnel.

The O&M Department has equipment that can be quickly mobilized to meet customer needs and maintain the facility.

Forklifts	cement mixer	pickup trucks
Portable welder	scissors lift	box van
Portable air compressor	articulating man-lift	cargo vans
Skid loader	snow blowers	stake body trucks
Utility tractors	pressure washer	micro vehicles

3.7.11 O&M Organization Chart

Attachment 1 gives a break down of the O&M Organization. This chart lists each shop along with the supervisor, lead and employees within the specific trade.

3.8 MANAGER OF ADMINISTRATION AND CONTROLS

The Manager of Administration and Controls (MAC) is responsible for monitoring all FME indirect budgets and direct project budgets, costs and schedules and reporting to the FME Director. The MAC is ultimately responsible for preparation and maintenance of all Project baseline budget and schedule development and monitoring. The MAC is also responsible for the resource plan integration of the WO projects into an FME Master Schedule and the FPSR.

The MAC is also responsible for managing administrative/business matters for the FME Directorate. This includes planning and implementing FME Management initiatives; developing and monitoring the FME indirect cost center budgets; assisting Finance in establishing and monitoring overhead rates; assisting management develop, fulfill and monitor staffing plans; establishing and monitoring employee charging practices; interfacing with other SAIC-Frederick Directors for activities pertaining to fiscal year budget development and other business matters; and developing routine Directorate reports.

The MAC oversees FME nonexempt administrative staff to ensure consistency in job responsibilities and skills within the organization. The MAC also serves as the FME primary point-of-contact/liaison with the SAIC Administration and Contracts management team (Finance, HR, Contracts).

The MAC provides the necessary policies, procedures, data and information to plan, integrate and execute WO's and work assigned to FME. Part of that planning phase, is to integrate projected workload into resource-loaded schedules, to provide milestones and measuring points for subcontracted work and generally to assist Project Teams in meeting budget and schedule objectives.

The MAC is responsible for compiling the data, information and WO project statuses for the monthly Facility Project Status Report (FPSR) that is submittal to NCI. The Project Managers and various FME, SAIC-Frederick databases provide the information and WO status.

3.8.1 Project Controls Cost and Schedule Planners

The PC planners support the Project Managers and Project Teams through a matrix approach to provide direct support of all the cost, schedule, and baseline information for each PM. The PC Planners are responsible to maintain the current status of all planned WO's and to evaluate cost and schedule variances to assist the PM's in planning and executing the WO projects.

Resource Allocation
The Planner works in conjunction with the PMs and Maintenance shops to develop resource-loaded schedules. This segmentation of the overall project schedule will distinguish construction/ maintenance activities that have recently been completed and forecast the projects, which will need to be staffed in the future. Integrating the schedule and the resource loading (actual and forecasted) a clear picture of resource needs will be determined. These tools assist in the scheduling of activities based on the available construction/shop staff.

The resource loading of schedules also enables the Planner/Shops to determine the planned earned value/job hours associated with each project. When comparing the planned earned job hours to the actual earned and actual expended hours, analysis can be performed to determine schedule and budget performance.

Duties include:

- Develop conceptual and detailed estimates
- Establish and maintain WO budgets through the trend program and change control
- Maintain and update project status through coordination with the various members of the project team
- Maintain and coordinate with PMs and Shops to determine appropriate resource/staffing loads.
- Cost and commitment control
- Detailed and summary project performance reporting (FPSR, Cost Performance Reports, Schedules, & Resource analyses)
- Facilitate Work Order Tracking from receipt to final closeout
- Conduct weekly Plan of the Week (POW) meetings in order to facilitate communication among the project managers shop management. This meeting will be used to gather information regarding current project status and future project execution, as well as report weekly progress to FME management.

3.8.2 Cost Trend Engineer

A Cost Trend Engineer (CTE) is assigned to assist in maintaining control of project costs, arising from design development or other causes elsewhere in the project.

The responsibilities of the CTE include the following functions, where applicable:

- Participating in defining the initial Project Scope and estimating the overall cost of the project.
- Initiating and maintaining a Cost Trend Program, based upon a current budget, through coordination with the project team and the results of regular project cost trend meetings with the Project Team and FME management.
- Initiating and maintaining a current Project Cost Trend Register, and providing cost information to the Project Team management as the project develops. Also, preparing, analyzing, and distributing Cost Trend Reports.
- Assisting and participating, as required, in cost evaluation of alternate designs and in project cost forecasts, including obtaining requested cost information for the Project Engineering Team.

3.8.3 Administrative Assistants

An Administrative Assistant implements, and interprets administrative policies and procedures, and establishes administrative work standards.

The responsibilities include the following functions, where applicable:

- Establishing and maintaining the Document Control Center for handling all project communications and engineering documents internally generated or received from outside sources. This includes receiving, logging, and reproducing, distributing, filing, retrieving and maintaining a tickler system for control of action items.
- Distributing documents generated by FME personnel. This includes correspondence, manuals, reports; procedures, controls, lists, schedules and those purchase and subcontract documents issued by FME.
- Maintaining forms control, to assure use of the latest revisions to forms.
- Processing and coordinating administrative papers such as time cards, sick leave, vacation and overtime requests, and attendance records.
- Controlling and distributing applicable procedures.
- Preparing and making necessary revisions to other procedures, as required.

FMEP-P-0490 Attachments

Attachment 1 FME Organizational Chart
Attachment 2 Project Team Matrix (DST)
Attachment 3 R2A2 for NCI Projects