

ACCELERATOR DIVISION (AD) ADMINISTRATIVE PROCEDURE

ADAP-06-0022

MECHANICAL SUPPORT DEPARTMENT (MSD) MANAGEMENT PROGRAM PLAN IN SUPPORT
OF THE FMI PROJECT:

A Specific Quality Implementation Plan

RESPONSIBLE DEPARTMENT AD/Mechanical Support Department

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1.0 PURPOSE AND SCOPE

1.1 Purpose

The purpose of this "Mechanical Support Department (MSD) Management Program Plan (MPP) for the FMI Project" is to describe the MSD functions and organization and its implementation, for its contributions to the Fermilab Main Injector (FMI) Project, of Quality Assurance Criteria 1 through 10, as stated in the Fermilab Quality Assurance Program (dated December 30, 1993), and in conformance with the Accelerator Division (AD) MPP, ADAP-06-0001, Revision 1), and in compliance with DOE Order 5700.6C (dated June 21, 1991).

1.2 Scope

The description and requirements of this plan are generally applicable to all activities of the MSD in support of the FMI Project.

2.0 MSD FUNCTIONAL ANALYSIS

2.1 MSD Terminal Objectives

- TO - 1 To maintain mechanical equipment and systems within the Accelerator as specified by Division management.
- TO - 2 To design and develop new accelerator equipment to be used as upgrades or improvements to the present complex.

2.2 MSD Subordinate Objectives

- SO - 1 To provide systems expertise in diagnosing accelerator operational problems.
- SO - 2 To repair failed mechanical components removed from the machine.
- SO - 3 To train personnel in the proper techniques for maintaining and repairing the equipment.
- SO - 4 To perform preventive maintenance on various mechanical equipment within the Division.
- SO - 5 To provide failure tracking and trend analysis for operational equipment and systems.
- SO - 6 To maintain a database that associates specific department personnel with the equipment they are responsible to maintain and repair.
- SO - 7 To support accelerator R&D as required through the design and development of mechanical components and systems.

3.0 MSD ORGANIZATION

The roles, responsibilities, and authorities of the leadership positions in the MSD are reflected in the current job responsibilities section of the annual performance review for these individuals. An MSD organization chart including the names of all personnel in the MSD is maintained in the MSD Head's Manual and is published in the Division's Organization Chart.

The responsibilities of the FMI Project Level 3 Manager (L3M) for WBS 1.1.2 (Vacuum), and the L3M for WBS 1.1.12 (Utilities), and the L3M for WBS 1.1.13 (Installation) are listed in FMI PMP, page 16.

4.0 MSD SPECIFIC QUALITY IMPLEMENTATION PLAN FOR THE FMI PROJECT

4.1 CRITERION 1 - PROGRAM

4.1.1 This Department MPP is based on the December 30, 1993 Fermilab Quality Assurance Plan (FQAP), on the AD MPP, and on the FMI MPP.

4.1.2 The FMI mission statement has been documented in the approved FMI Project Plan, a DOE document dated May 1992. The objectives of the FMI project are to design, construct, commission, and operate a 150 GeV accelerator. The commissioning goals (Table 1.1, "FMI MPP, ADAP-06-0019, Page 3") have been established to mark the end of construction and the beginning of routine operation for the experimental programs. The operational goals (Table 1.2, "FMI MPP, ADAP-06-0019, Page 3") are for the facility after it has been in use for some months, recognizing that progressive improvements in performance occur as regular operations for the physics research program proceed.

4.1.3 The organizational structure, functional responsibilities and levels of authority for the MSD, and the responsibilities of the FMI Project L3Ms for WBS 1.1.2, 1.1.12, and 1.1.13, have been addressed in Section 3.0 above. A complete list of tasks related to the FMI Project that have been assigned to MSD employees is to be found in the L3Ms' offices.

4.1.4 The description of all organizational interfaces with other organizations at Fermilab is fully covered in the FMI Project MPP, Section 4.1.4 and is not repeated here.

4.2 CRITERION 2 - PERSONNEL TRAINING AND QUALIFICATION

4.2.1 In-house training is provided to insure that an appropriate level of skills, knowledge, expertise, and experience are available to accomplish the stated mission and subordinate objectives. Training may come from several sources such as mentoring provided by physicists, engineers, supervisors, lead personnel, consulting firms, manufacturers' operating manuals, and other sources.

Records of training received by MSD members with assigned responsibilities for the FMI Project are to be found in the MSD Head's office in the binder labeled, "AD MSD Training Logs".

Those appointed to management positions within the MSD are chosen for their technical and communications skills, as well as their total experience and knowledge of the working of the Laboratory. The AD does not specify any further training or education for these personnel beyond what they initially bring to their positions. However, the department head will normally request or require that personnel in management positions attend the Supervisory Development Course taught by the Laboratory Services Section. The department head may also suggest or require further technical training. The department head may suggest or require that a manager take further management training.

Supervisors within the MSD are chosen by the department head. These personnel are chosen based primarily on the basis of their technical abilities. If deemed useful by the department head, an individual supervisor may be requested or required to attend the Supervisory Development course taught by the Laboratory Services Section. Other training or education, oriented toward development of technical and/or supervisory skills, may also be suggested or required by the department head, but there are no generally applicable requirements mandated by the AD.

4.2.2 Environment, Safety and Health (ES&H) training is provided to MSD employees, commensurate with the hazards associated with the work performed. The AD ES&H Department maintains a data file which records the detail and extent of the training received by each person and is the basis for regular periodic assessment of on-going and repeat training requirements. Specific training requirements are determined by line managers. The MSD Head maintains copies of ES&H training records.

4.3 CRITERION 3 - QUALITY IMPROVEMENT

The description of Quality Improvement requirements and methods is fully covered in the FMI Project MPP, Section 4.3. This material applies equally to the FMI Project and the MSD responsibilities to the FMI Project and is not repeated here.

4.4 CRITERION 4 - DOCUMENTS AND RECORDS

The AD/MID (see the MID MPP) is responsible for implementing a documents and records management system for the FMI Project in order to insure that appropriate, auditable documents and records are retained and retrievable.

4.4.1 In compliance with DOE Order 4700.1 (June 2, 1992 Revision) the requirements for documenting the organization, functions, policies, decisions, procedures and essential transactions of the FMI Project are specified in the FMI Project Management Plan (December 1992) and documents referenced therein.

4.4.2 The Procedure ADDP-MI-0001 "FMI Document Control Center Procedures" defines when documents should fall into the Control Document category; the procedure describes the steps required for Control Documents which includes restrictions on preparation, review, approval, issuance and revisions. The current list of FMI Controlled Documents developed to date include the following:

- The FMI Title I Report
- The FMI Procedure Handbook
- Engineering Change Requests
- The Preliminary Safety Analysis Report
- The Project Management Plan

The FMI Document Control Center is housed in the AD/MID administrative office.

4.4.3 Following DOE Orders 1324.2A (Records Disposition) and 1324.5 (Records Management Program), the FMI records management activities are conducted in accordance with the "Fermilab Records Management Handbook." Detailed procedures are to be found in the Controlled Document FMI Procedures Handbook (see Procedure FMI 001 and 002).

4.4.4 A listing of existing MSD Procedures as well as copies of the Procedures themselves are maintained by the MSD Head.

4.5 CRITERION 5 - WORK PROCESSES

4.5.1 The responsibilities of the FMI Project L3Ms, including the L3Ms for WBS 1.1.2, 1.1.12, and 1.1.13, are as described in the FMI PMP (page 16). In particular, the L3Ms for WBS 1.1.2, 1.1.12, and 1.1.13 strive for effective human resource management within the MSD, with the goals of hiring and maintaining an efficient and effective work force.

4.5.2 The individual MSD worker is the first line in ensuring quality. The MSD Head and the L3Ms for WBS 1.1.2, 1.1.12, and 1.1.13 are responsible for ensuring that people who are assigned to tasks have the appropriate academic qualification, professional certification, or skills and experience to carryout the work successfully.

4.5.3 The MSD Head and the L3Ms for WBS 1.1.2, 1.1.12, and 1.1.13 are responsible for planning, authorizing, and specifying (to an appropriate level of detail) the conditions under which MSD work for the FMI Project is to be performed. The MSD Head and the L3Ms for WBS 1.1.2, 1.1.12, and 1.1.13 specify which work is sufficiently complex or involves sufficient hazard to be performed to written procedures. When written procedures are deemed appropriate they will be prepared, revised, approved, and distributed as ADDPs, as prescribed by ADAP-01-0001.

4.5.4 The MSD Supervisors define the performance objectives for which MSD personnel who work on the FMI Project will be held accountable. In addition, criteria which define acceptable work performance

4.9 CRITERION 9 - MANAGEMENT ASSESSMENT

4.9.1 The FMI PMP (in particular sections IV and IX) describes how FMI Project management periodically evaluates whether or not the FMI management infrastructure and resources are properly focused on achieving the FMI mission objectives. This includes a weekly project status meeting, chaired by the MID Head, which is attended by the FMI Project Manager, all MID staff, and all L3Ms, including the L3Ms for WBS 1.1.2, 1.1.12, and 1.1.13. As the FMI Project progresses, every effort will be made to apply the Risk-Based Graded Approach to Implementation as specified in ADAP - 06 - 0001, Rev. 1, Section 3.0, Pages 4 and 5.

4.9.2 The ES&H performance of the FMI Project including the work done by the MSD is periodically evaluated in accordance with the AD ES&H Self-Assessment Plan.

4.10 CRITERION 10 - INDEPENDENT ASSESSMENT

4.10.1 The Fermilab Director has assigned responsibility for performing independent assessment to the Quality Assurance, Conduct of Operations, and Self Assessment Offices in the directorate.

4.10.2 Independent assessments of the performance of the MSD by the AD are carried out as specified in the AD MPP.

5.0 EXTRA-DIVISIONAL DISTRIBUTION

NONE

