

ACCELERATOR DIVISION ADMINISTRATIVE PROCEDURE

ADAP-06-0001

ACCELERATOR DIVISION MANAGEMENT PROGRAM PLAN:

A Specific Quality Implementation Plan

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1.0 PURPOSE AND SCOPE

1.1 PURPOSE

The purpose of this Management Program Plan (MPP) is to describe how the Accelerator Division manages its work activities while implementing the ten (10) Quality Assurance Criteria of the Fermilab Quality Assurance Program (FQAP). This plan is to be considered equivalent to the Division's Specific Quality Implementation Plan (SQIP) as specified in the FQAP. The essential principles underlying this plan (the Division MPP) are that:

- a. The plan should accommodate the diverse and unique needs of the Division;
- b. The plan should provide adequate flexibility for accommodating evolving programmatic objectives;
- c. Risk is a fundamental consideration in determining to what extent the formal Quality Assurance Program should be applied to items and processes (DOE 5700.6C Guidance). Risk is interpreted as applicable to 1) public safety and health, 2) site personnel safety, 3) environmental protection, and 4) programmatic objectives and property concerns.
- d. The plan should employ a graded approach to implementation of the 10 QA Criteria based on risk to ES&H and programmatic objectives. Elements of a graded approach include consideration of risk together with consideration of the scale, cost, complexity, hazards, and programmatic significance of the work being performed; and
- e. The plan should drive decision making authority to the lowest effective organizational level where the maximum expertise is localized.

This document specifies, by direct description or reference, the methods by which the Accelerator Division meets the 10 Fermilab QA Criteria and establishes the Division requirements for addressing the 10 Fermilab QA Criteria in Division Departments and projects.

1.2 SCOPE

The descriptions and requirements of this plan are generally applicable to all activities conducted by the Accelerator Division, its Departments, and those line-item and other projects administered by the Accelerator Division.

2.0 IMPLEMENTING DOCUMENTS

The Accelerator Division program for implementing the Fermilab Quality Assurance Program is documented in Management Program Plans (MPPs) and procedures established within the Accelerator Division Procedure System. For the Accelerator Division, the MPPs, at

whatever level, serve the function of the Specific Quality Implementation Plans (SQIPs) as discussed in the FQAP.

2.1 MANAGEMENT PROGRAM PLANS

There are three types of MPPs within the Accelerator Division:

- a. Division MPP (this document);
- b. Project MPPs; and
- c. Department MPPs.

The Division, Department, and project MPPs are to be approved by the Division Head and shall be issued and controlled as Accelerator Division Administrative Procedures (see section 2.2 below). In addition, the Division MPP and MPPs for all line-item construction projects in the Division that carry the designation "Major Systems Acquisition" per guidance of DOE 4700.1 shall also be approved by the Fermilab Director.

Annually, a list of all MPPs maintained within the Division will be provided to the Directorate Quality Assurance Office by the Division representative to the Laboratory QA Committee.

2.1.1 Division MPP

See Section 1.1 above for a description of this document.

2.1.2 Project MPPs

Most projects are administered through the standard Division and Department activities. A lead Department is defined for a given project and a project manager is assigned from the lead Department by the Division Project Coordinator. A MPP will be developed for a particular project at the discretion of the Division Head. If the Division Head determines that a project requires its own MPP, the project manager will be assigned responsibility by the Division Head to prepare and maintain the project MPP.

A Project MPP will be required for any and all line-item construction projects in the division that carry the designation "Major Systems Acquisition" per guidance of DOE 4700.1. A Project MPP may be required by the Division Head for a particular GPP, AIP, or R&D project that poses significant ES&H or programmatic risks.

2.1.3 Department MPPs

In general, Departments are not required to prepare a Department-specific MPP. Under some circumstances to be determined by the Division Head, however, a Department may be required to prepare and maintain a current MPP, according to the requirements of ADAP-01-0001 for ADAPs, which describes a specified subset of the Department's functions and organization and its implementation of the ten criteria

of the FQAP. This would most often be done for those Department activities done in support of a Project operating under its own MPP (see Subsection 2.1.2). The Department MPP would cover by direct statement or reference those activities specific to the subject Project.

2.2 ACCELERATOR DIVISION PROCEDURE SYSTEM

The Accelerator Division procedure system consists of three distinct series of procedures: AD Administrative Procedures (ADAPs), AD Environment, Safety, and Health Procedures (ADSPs), and AD Departmental Procedures (ADDPs).

The ADAPs and ADSPs are Division procedures. The ADDPs are Department procedures. There are 15 active subseries in the ADDP series. Generally there is one subseries per AD department with a separate subseries also designated for Division Headquarters and separate subseries provided for the Cryogenic Systems Group and Central Helium Liquifier Group of the Cryogenic Department.

The procedure system was formally established by issuance of ADAP-01-0001, Accelerator Division Procedure Requirements. That document describes the methods for preparing, reviewing, approving, controlling, distributing and revising procedures. It also establishes the guidelines to be followed for determining which activities are to be proceduralized in the system. The specific requirements are referred to under the appropriate QA Criteria later in this Division MPP.

The existence of ADDP series of procedures does not preclude the use by the Departments of other systems for providing information and instruction on work activities, methods, equipment and system operation, etc. Per ADAP-01-0001, Departments may create less formal documentation systems as deemed necessary by their management. If other such systems are used, it is suggested that they be established in an ADDP subseries procedure in which their framework and purpose is described .

3.0 THE RISK-BASED GRADED APPROACH TO IMPLEMENTATION

In accordance with the Fermilab Quality Assurance Program, Division and Department management should use a graded approach to implementation of the FQAP requirements based on the scale, cost complexity, hazards, and programmatic significance of activities under consideration. In order to do so, management needs to evaluate the risk (ES&H and programmatic) associated with its activities and institute controls or practices appropriate to those risks if such controls are not already in place at another organizational level. The FQAP contains the criteria and policies (i.e., the 10 Fermilab QA Criteria) which are to be applied and met in developing these controls and practices.

As a proposed management tool for implementing a graded approach in the Division's implementation of the FQAP, Attachment 1 provides two tables that can be used in the production of a relative ranking or assessment of objectives, projects, systems, activities, and tasks.

The tables afford quantitative ranking of risk in five different categories (Table 1) and quantitative ranking of selected characteristics in five different categories (Table 2). Hazards are not specifically addressed in the tables. In their place, however, the ES&H consequences that result from accidents involving hazards or exposure to hazards are listed in Table 1.

Using Table 1, a risk score for a objective, project, system, activity, or task in a particular category is achieved by determining the probability of a specified consequence within the category. Only one cell, with an indicated score, is selected for a given category. The cell with the higher score is generally selected if there is difficulty in choosing between two cells, though interpolation of scores is sometimes appropriately applied. A total risk score for a particular objective, project, system, activity, or task is derived by summation of the risk scores from each of the consequence categories. This technique is adapted from the Risk-Based Priority Model (RPM) utilized by DOE in the Safety and Health Five Year Plan. It should be used to establish a relationship between different activities to determine where resources can best be applied to lower the organization's overall risk potential.

In some low risk cases, it may be the case that no controls are necessary for an activity, but management should be prepared to justify such a determination. When management institutes controls and practices for those projects, systems, activities, or tasks that score relatively high in terms of ES&H and programmatic risks, it is important for management to assess the success of the additional controls and practices in reducing risk. Additional controls and practices that fail to reduce risk are not cost-effective.

Also presented in Attachment 1 is Table 2 which facilitates a quantitative ranking of selected characteristics of an organization, activity, or project. The categories of this table relate to statements of fact or situation. These tables are unidimensional in that probability is not a factor. The categories are not directly associated with risk but are, however, still valuable in determining the appropriateness of additional controls and practices.

It is to be emphasized that the use of these tables is a management tool that provides a relative ranking. A derived score for an individual objective, project, system, activity or task is held meaningless unless compared to scores for other objectives, projects, systems, activities, or tasks.

As is done for the RPM, the use of this tool is best accomplished when scoring is done by a group of individuals that are conversant in the implications of the categories and are acquainted with the objectives, projects, systems, activities, or tasks that are being scored. Training in the technique is advised, as well as some amount of practice in its use. The tables contained in Attachment 1 will be updated as necessary. The use of these tables will lead to a refinement of their content that best suits Divisional purposes.

4.0 THE ACCELERATOR DIVISION IMPLEMENTATION OF THE 10 FERMILAB QUALITY ASSURANCE CRITERIA

4.1 CRITERION 1: PROGRAM

4.1.1 Division Mission

The mission of the Accelerator Division is equivalent to the Division functional objectives presented in paragraph 4.1.3.1.

4.1.2 Division Organization

The Accelerator Division organization is established by the Division Head. The Division organization is documented on the Accelerator Division Organization Chart which is maintained by the Associate Division Head for Administration and Environment, Safety, and Health and approved by the Division Head.

The detailed organization of each Accelerator Division Department is established by the individual Department heads. The detailed organization of a Department may be subject to the review of the Division Head or the designated Division Associate Head who has oversight responsibility for that particular Department.

4.1.3 Division Functional Analysis

The Division Functional Analysis describes the work activity of the Division to only that sufficient level of detail necessary for adequate and safe management of the activity. This analysis effectively explains, at various levels of detail, the Division's component responsibilities and tasks constituent to the carrying out of Fermilab's mission. The Division's Functional Analysis, as outlined in Attachment 2 of this document, is defined at two distinct levels of detail, the Division and Department levels.

- a. The Functional Analysis at the Division level is described in terms of Functional Objectives and Ancillary Objectives. The Functional Objectives are those which directly provide for the management of the Fermilab accelerators for Physics research, while the Ancillary Objectives represent additional functions assigned to the Division in support of the Laboratory's overall operation. These objectives are presented in paragraphs 4.1.3.1 and 4.1.3.2. These objectives are the highest level and broadest descriptions of work activity in the Division, though certain of the Ancillary Objectives may tend to be more specific in nature.
- b. The Functional Analysis at the Department level is described in terms of Terminal Objectives and represents the work activity of the Department as related to Division objectives. The Department Terminal Objectives should be clearly traceable back to one or more of the Division Functional or Ancillary Objectives.

The Terminal Objectives for each of the Accelerator Division Departments are also described in paragraph 4.1.3.3 of this document. These objectives are the broadest descriptions possible of work activity at the Department level.

4.1.3.1 Division Functional Objectives

- FO.1 To operate the Fermilab accelerators and associated facilities and systems for Physics research.
- FO.2 To improve the Fermilab accelerators and associated facilities and systems to enhance reliability and performance.
- FO.3 To maintain the Fermilab accelerators and associated facilities and systems.
- FO.4 To assess the performance of the Fermilab accelerators in relation to the needs of the Physics research program.
- FO.5 To implement procedures and controls, including internal assessments, necessary to ensure Division activities are performed in accordance with Laboratory management and ES&H policies.

4.1.3.2 Division Ancillary Objectives

- AO.1 To provide support for and participate in Physics experiments.
- AO.2 To direct research programs for students in the Fermilab Accelerator Physics Graduate Program.
- AO.3 To provide support for and participate in accelerator-related technology research and development. and technology transfer activities.
- AO.4 To perform work for others in selected areas, including support of the Neutron Therapy Facility.
- AO.5 To maintain and upgrade the Fermilab Incident Reporting and Utility System (FIRUS).
- AO.6 To maintain and improve the Wilson Hall automated lighting system.

4.1.3.3 Department Terminal Objectives

- Accelerator Physics TO.1 To assist in the design and analysis of existing and future accelerators, using Accelerator Physics models and tools, in order to optimize their performance.

- Antiproton Source
- TO.1 To produce and accumulate antiprotons of sufficient quality and in sufficient quantity to meet the needs of the Laboratory's accelerator and Experimental Physics program.
 - TO.2 To maintain and, where possible, improve the reliability of the antiproton source. In the case of failure, to provide quick repair and minimize the potential loss of data to the research program.
- Controls
- TO.1 To operate, maintain, and improve the accelerator control system at a traditional high level of performance.
 - TO.2 To maintain and improve the FIRUS (Fermilab Incident Reporting and Utility System) labwide system in such a manner as to provide its important safety information with adequate speed and high reliability.
 - TO.3 To maintain the Wilson Hall automated lighting system in such a manner as to maximize convenience to residents and to minimize energy utilization.
 - TO.4 To maintain the controls of the Linac in support of the Neutron Therapy Facility.
 - TO.5 To aid the DO experiment in a variety of ways related to real time data collection.
 - TO.6 To maintain the controls, alarms, and limits data system for the CDF detector.
 - TO.7 To maintain the ALMOND VAX cluster in support of general computing in the Accelerator Division.

- Cryogenics
- TO.1 To provide technical support for the operation and maintenance of the equipment required for the Tevatron's satellite refrigeration system, Switchyard, ER and P-Bar cryogenics.
 - TO.2 To provide engineering and operational support for the various subsystems required for the Tevatron cryogenic system, specifically the Central Helium Liquefier facility's liquid helium and nitrogen plants and associated cryogen inventory management.
- E/E Support
- TO.1 To maintain electrical and electronic 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.
 - TO.3 To develop and maintain the Accelerator Division computer network system.
- ES&H
- TO.1 To assist the Division Head in the implementation of the laboratory safety program within the Accelerator Division.
- Main Accelerator
- TO.1 To assure that the Main Ring and the Tevatron accelerators can deliver beams to meet the goals of the Laboratory's High Energy Physics program.
 - TO.2 To transport extracted particles from the Accelerator Division to the Research Division experimental areas in an efficient and precise manner satisfying the Laboratory's Physics program.
- Main Injector
- TO.1 To carry out the design, construction and commissioning of the Fermilab Main Injector (FMI) Project within the cost and schedule contained in the Project Management Plan. To assure attainment of design criteria for intensity and repetition rate. To assure compliance with all environmental, health and safety requirements.

Mechanical Support	TO.1	To provide mechanical engineering, design, and technical manpower in support of the operation, maintenance, and improvement of the accelerator complex.
NTF	TO.1	To treat cancer patients using fast neutron therapy.
Operations	TO.1	To operate and assist in maintaining all accelerator systems within the Accelerator Division.
Proton Source	TO.1	To provide a beam of sufficient quality and quantity to the Booster for maintaining the Laboratory's accelerator and physics program in the coordination with the Operations Group.
	TO.2	To ensure that the Booster proton synchrotron fulfills all the requested operational parameters with the highest possible efficiency and lowest possible downtime.
	TO.3	To ensure that all systems under the Proton Source Department's care are in optimal working order, to fix systems that are not and to ensure that all needed tools for maintenance exist.
	TO.4	To provide appropriate support to the Neutron Therapy Facility for patient treatment in coordination with the Operations Group.
RF and Instrumentation	TO.1	Support of the 100KW and 150KW R.F. Power Amplifiers and their associated equipment by repair, maintenance and/or replacement of components, tubes, insulator, or sub assemblies. To maintain the various test stations and equipment necessary to insure the repaired equipment conforms to satisfactory operating standards.
	TO.2	To make operational and maintain equipment and systems that pertain to accelerator diagnostics and beam controls.
	TO.3	Provide personnel and equipment to support the design and development of new projects and/or improvements to the accelerators.

- TO.4 Maintain operational integrity of F0 High Level R.F. Systems, Transverse Beam Dampers and Coalescing R.F. Systems.
- TO.5 Provide RF test station facilities for cavity and RF power source development and reliability testing.
- TO.6 Assist operational groups working on projects at the F0 MRRF Facility.

4.1.4 Division Personnel Job Descriptions

For the upper management of the Division, which ranges from Division Head to Department Heads, these job descriptions are listed in Attachment 3, Functional Roles, Responsibilities, and Authorities of Accelerator Division Management. The generic functional RRAs for a Department Head, as found in Attachment 3, together with the responsibility for implementing the Terminal Objectives of that Department comprise the job description of a particular Department Head.

For other Division personnel, the description of job responsibilities documented during the annual performance review process constitutes their detailed job description (see Subsection 4.5.6).

4.1.5 Division Management Roles, Responsibilities, and Authorities

The roles, responsibilities, and authorities (RRAs) of members of Accelerator Division Headquarters and the heads of Division Departments have been established and are listed in Attachment 3.

4.1.6 Interfaces to Other Organizations

The Division is required to interface with all other Divisions/Sections of the Laboratory. The organization of these Divisions/Sections are defined by the Fermi National Accelerator Laboratory organization chart, maintained by the Directorate. The Accelerator Division has designated liaisons to the major technical Divisions/Sections as described in Attachment 3.

Designated liaisons to other Divisions/Sections serve to coordinate and prioritize certain work activities that have significant impact on the Accelerator Division. These liaisons may also serve to resolve particular issues that normally arise in the conduct of Laboratory business.

It is extremely important to note that the Accelerator Division interfaces with other Divisions/Sections in thousands of ways that are not formally documented or governed by procedure. This lack of formality is appreciated by the personnel of the Accelerator Division. These types of communications between people at the

Laboratory are frequently credited in terms of the Division accomplishing its objectives. Our experience has been that this is "Quality Assurance" at its very best and that these interfaces are essential to the success of the Laboratory and its mission.

4.2 CRITERION 2: PERSONNEL TRAINING AND QUALIFICATION

4.2.1 Technical and Professional Training and Education

The determination of what training and education is necessary in order to be qualified to perform a particular task (related to technical or professional skills, and certain ES&H requirements) is left to the discretion of the Department Head.

Any general Department training or education requirements established by a Department Head should be documented as an ADDP procedure or other retrievable means. Specific training requirements for a particular task may be documented in an ADDP procedure which is developed to control that task.

Where certain technical skills are needed in order to perform a function safely or to be qualified under regulatory requirements to perform the function (e.g., crane operation) and such skills are to be obtained through formal technical training, this technical training should be included in the ES&H Training Needs Assessment (see 4.2.4).

4.2.2 Manager and Supervisor Training

4.2.2.1 Managers appointed within the Division are the Assistant Division Heads and Department Heads. Higher level managers, i.e., the Division Head, Deputy Division Head, and Associate Division Heads, are appointed by the Director.

Those appointed within the Division are chosen for their technical and communications skills. The Division does not specify any further training or education for these personnel beyond what they initially bring to their positions. However, the Division Head will normally require that a Department Head attend the Supervisory Development course taught by the Laboratory Services Section. The Division Head may also require further technical training for any particular Department Head or for key personnel within a Department.

4.2.2.2 Supervisors within the Departments are chosen by their Department Heads. Supervisory positions include Deputy Department Heads, Group Leaders, and Task Managers. These personnel are chosen based primarily on their technical abilities. If deemed useful by the Department Head, an individual supervisor may be 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 required by the Department Head, but there are no generally applicable requirements mandated by the Division. Any general Department requirements established by a Department Head should be documented.

4.2.3 On-Going Training

The division policy on on-going training associated with technical skills is addressed in Paragraph 4.2.1. The division policy on on-going ES&H training is addressed in Paragraph 4.2.4.

4.2.4 ES&H Training

The Accelerator Division ES&H Department coordinates the Division program for assessment of ES&H training needs of personnel. Every employee assigned to the Division, on a permanent or temporary basis, is to have their ES&H training needs assessed by their Department Head, or a supervisor designated by the Department Head, based on the tasks to be assigned to that employee and subject to Division-wide requirements defined by the Division Head. The needs assessment shall result in a completed ES&H Training Needs Assessment form. The form is developed and maintained by the ES&H Department. The completed forms are maintained by the ES&H Department. The information is made available to Department Heads in summary form. It is the Department Head's responsibility to ensure that personnel have completed the appropriate ES&H training prior to performing tasks for which such training is required or that they have received an exemption from the training requirement from the appropriate level of management.

4.3 CRITERION 3: QUALITY IMPROVEMENT

Accelerator Division Procedure Requirements, ADAP-01-0001, requires that procedures be developed within the Division procedure system at the Division or Department level based, in part, on considerations of programmatic risk; that is, certain projects, systems, and tasks having the potential for significant impact on Laboratory or Division programmatic goals should be considered for proceduralization. One element of procedures governing those projects, systems, and tasks may be the establishment of methods of preventing quality problems and methods for detecting, documenting, analyzing, and correcting quality nonconformances that do occur. Per ADAP-01-0001, responsibility for determining those projects, tasks, and systems for which such measures are necessary resides with the Division managers responsible for the activity. By extension, these managers are also responsible for determining the specific methodologies to be established. The specific items of FQAP Appendix 4, Section 5.3 are addressed below.

4.3.1 Division-wide Information Gathering and Analysis

Information relating to overall accelerator performance is gathered and analyzed either in the form of operating statistics or through the Accelerator Division ES&H Self Assessment Program.

4.3.1.1 Operating statistics

High level operating goals are established by Accelerator Division management in consultation with the Directorate. Operating

statistics are compiled and maintained by the Accelerator Division Operations Department. Performance is reported weekly at the laboratory All Experimenters' Meeting.

Downtime statistics for all accelerator subsystems are maintained by the Operations Department and distributed weekly to all Department Heads and Division management. Additional meetings to discuss and analyze the operations statistics are called on an as needed basis.

4.3.1.2 ES&H Self Assessment

Assessment of performance with respect to ES&H performance objectives is implemented through the Accelerator Division ES&H Self Assessment Program.

4.3.2 Identification and Reporting of Performance Problems by Employees

A series of regular meetings have been established to allow employees to report and discuss performance of accelerator equipment. These meetings, which are open to all employees, occur daily (9:00 AM) during collider operations and weekly (Monday at 3:00 PM) during fixed target operations. The meetings are routinely attended by Operations personnel, Department Heads, and representatives from active Physics experiments.

The regular meetings often indicate the necessity of holding special meetings to discuss in depth specific aspects of operations or technical problems. These special meetings are called on an as-needed basis.

In addition, during either machine operations or shutdowns, a coordinator is appointed by the Division Head to speed communication of information and decision making.

The Accelerator Division also fosters an open working environment that fosters and encourages communication of technical performance and problems.

4.3.3 Performance Problem Cause Analysis

The cause analysis of performance problems is primarily conducted at the Department level. Each Department has its own method of evaluating problems and performance which include regular Department meetings and discussion by Department technical personnel. It is quite common for members of a particular Department to communicate with members of other Departments or members of other Divisions/Sections in coming to consensus in strategies for mitigating or solving problems. These channels of communication, be they formal or informal, exist and are encouraged in the Accelerator Division.

In addition to the primary activity at the Department level, cause analysis of performance problems frequently occurs at the regularly scheduled and special meetings described in paragraph 4.3.2 with the particular benefit of input from a wide range of individuals having

broad technical knowledge. These meetings are often a forum for discussing the adequacy and merit of developed cause analyses and solutions.

In analyzing performance problems, Accelerator Division management encourages a no-fault attitude in the analysis. Such an attitude avoids laying immediate blame to human performance difficulties. Additionally, a number of individuals in the Division are familiar with root cause analysis techniques. These techniques are sometimes utilized in the understanding of especially complex or recurring problems.

4.3.4 Nonconformance Documentation and Reporting

Quality nonconformances identified during operations, inspections, acceptance and test activities, and design reviews should be documented as appropriate according to procedures established by the responsible department. For procured items and services, the Business Services Section Procurement Group should be provided with information regarding nonconformances.

4.3.5 Stop Work Authority Related to ES&H Issues

ES&H responsibilities and authorities, including stopping work due to unsafe practices or conditions, are described in Chapter 1030 of the Fermilab ES&H Manual.

4.3.6 Stop Work Authority Related to Quality of Work

All management and supervisory personnel within the Division are authorized and expected to halt unsatisfactory work being performed by any of the individuals or organizations reporting to them in the line-management hierarchy. The Division Head may specify other stop-work authority outside the normal management chain at his/her discretion.

4.4 CRITERION 4: DOCUMENTS AND RECORDS

4.4.1 Division Documentation Policy

Procedures produced within the Accelerator Division are governed by the requirements of ADAP-01-0001, Accelerator Division Procedure Requirements. ADAP-01-0001 requires that procedures be developed for documenting activities at the Division or Department level based on considerations of:

a. Scale: For large projects or systems that involve multiple organizational units having only partial knowledge of, or responsibility for the overall project or system, the corporate tasks and methods should be considered for proceduralization.

b. Complexity: If a project or system is unusually complex in design or implementation, then the process should be considered for proceduralization.

c. ES&H Risk: Projects, systems, and tasks involving significant risks to the environment or to the safety and health of personnel and the public should be considered for proceduralization.

d. Programmatic Risk: Projects, systems, and tasks having the potential for significant impact on Laboratory or Division programmatic goals should be considered for proceduralization.

e. Regulatory Requirements: Programs, systems, and tasks mandated by regulation (local, State, Federal) should be considered for proceduralization.

Per ADAP-01-0001, responsibility for determining those activities for which procedures are necessary resides with the Division managers responsible for the activity.

Departments are responsible for the creation, control, and maintenance of their own Accelerator Division Departmental Procedures (ADDPs). The existence of ADDP procedures does not preclude the use by the Departments of other systems for providing information and instruction on work activities, methods, equipment and system operation, etc. Per ADAP-01-0001, Departments may create less formal documentation systems as deemed necessary by their management. If such systems are used, it is suggested that they be established by, and their framework and purpose be described in, an ADDP subseries procedure.

Other documents (drawings, software, equipment specifications, etc.) are created and controlled as required by the cognizant Division manager.

In certain cases, documents produced within the Division may be of such priority that the Division Head will, at his discretion, establish specific due dates and tracking mechanisms to ensure that the documentation is produced (or revised) in a timely manner.

4.4.2 Controlled Documents

The Accelerator Division maintains three types of controlled documents at the Division level: the ADAP and ADSP series of procedures (described in Section 2.2 above) and the "Safety Assessment Document for Fermilab Accelerators".

Binders containing controlled copies of ADAPs and ADSPs are issued to the Division Head, Deputy Division Head, Associate Division Heads, and all Department Heads. In addition, Division Senior Safety Officers and ES&H Department Group Leaders are issued controlled copies of the ADSPs. Responsibility for the control and issuance of these controlled copies resides with the Associate Head for AESH. Additionally, efforts are underway to make uncontrolled copies of ADSPs readily available to Division personnel over the Division's office computer network.

Departments are responsible for the creation, control, and maintenance of their own Accelerator Division Departmental Procedures (ADDPs) which are controlled documents per ADAP-01-0001. Individual

Departments will create, control, and maintain other controlled documents when deemed necessary by the Department head.

4.4.3 Implementation of the Fermilab Records Management Program

The Accelerator Division records management activities are conducted in accordance with the requirements of the Fermilab Records Management Program as documented in the Fermilab Records Management Handbook. Department Heads work with their Departments' assigned File Custodians to identify and properly inventory and archive those Department documents which fall within the scope of the program. The Division Head, Deputy, and Associate Heads (and other personnel assigned to Headquarters) work with the Headquarters File Custodian to identify and properly inventory and archive those documents for which they are responsible which fall within the scope of the program. The Division's Records Coordinator supports the File Custodians in carrying out the program and acts as the Division's liaison to the Laboratory's Records Administrator.

4.4.4 Division Documentation Center

The Accelerator Division has established a Documentation Center near Division Headquarters and the Main Control Room to provide centralized access to documentation pertinent to the management of the Division. Subject matter includes records of the Division Shielding Assessment, reports of major external assessments, CDF and D0 procedures, design reports, directives and policies, and safety reports. An index of documents and forms regulating the lending of Document Center material are available at the center. The Associate Head for AESH is responsible for maintaining the Division Documentation Center.

4.5 CRITERION 5: WORK PROCESSES

ADAP-01-0001, Accelerator Division Procedure Requirements, requires that procedures be developed for work processes within the Division procedure system at the Division or Department level based on considerations of:

- a. Scale: For large projects or systems that involve multiple organizational units having only partial knowledge of or responsibility for the overall project or system, the corporate tasks and methods should be considered for proceduralization.
- b. Complexity: If a project or system is unusually complex in design or implementation, then the process should be considered for proceduralization.
- c. ES&H Risk: Projects, systems, and tasks involving significant risks to the environment or to the safety and health of personnel and the public should be considered for proceduralization.
- d. Programmatic Risk: Projects, systems, and tasks having the potential for significant impact on Laboratory or Division programmatic goals should be considered for proceduralization.

e. Regulatory Requirements: Programs, systems, and tasks mandated by regulation (local, State, Federal) should be considered for proceduralization.

Per ADAP-01-0001, responsibility for determining those work processes for which procedures are necessary resides with the Division managers responsible for the activity.

4.5.1 Maintenance of an Effective and Efficient Workforce

The Accelerator Division strives to maintain an efficient and effective work force in the carrying out of its Functional and Subordinate Objectives. The Division always attempts to appropriately utilize personnel skills in the assignment of work responsibilities. These matters are often discussed at the both the Division level and Department level of activity management. Ensuring that the Division successfully meets its objectives is accomplished by assigning personnel to particular tasks who have the appropriate skills, experience, academic qualification, or professional certification to complete the work. Accomplishing the work of the Division, given the complexity or innovativeness of the work, is not always done in straight-forward ways. The Division relies on line management to monitor activities to successful completion and to take necessary steps to incorporate added expertise and effort when indicated.

4.5.2 Assignment of Personnel to Appropriate Tasks

The relative priority of Division activities is established by the Division Head. These priorities are communicated in memo form to upper Division management which includes all Department Heads. Efforts necessary for projected work loads are matched to available staff size.

Personnel training and qualification for assigned tasks is discussed in Section 4.2 and evaluation of personnel performance is discussed below in paragraph 4.5.6.

4.5.3 Determination of Work Processes Requiring Documented Instructions, Procedures, or Drawings

Work processes and tasks are reviewed for risk associated to ES&H and programmatic objectives. This review is primarily conducted at the Department level, but also at the Division level for large scale and/or especially complex activities. Such reviews yield a relative assessment of risk. Determination as to what extent the associated instructions, procedures, and drawings should be generated and controlled should effectively address reduction of ES&H and programmatic risk while making best use of available Division resources.

4.5.4 Work Processes Requiring Documented Instructions, Procedures, or Drawings

Work processes requiring documented instruction, procedures, or drawings that have been determined to be necessary, as per paragraph 4.5.3, shall be developed and maintained at the Department or Group level in accordance with the requirements of ADAP-01-0001 or other Division procedures or programs to whatever extent they apply.

4.5.5 Document Control

Documents that have been determined to be necessary to control, as per paragraph 4.5.3, shall be developed and maintained at the Department or Group level in accordance with the requirements of ADAP-01-0001 or other Division procedures or programs to whatever extent they apply. Archiving of appropriate documentation is in accordance with the Fermilab Records Management Program.

4.5.6 Personnel Performance Objective Determination and Evaluation

For non-scientific staff, performance objective determination and evaluation is performed as part of the Laboratory's Performance Review Program as described in Article 25 of the *Fermilab Personnel Policy Guide*. Scientific staff are reviewed under a separate program coordinated by the Laboratory Directorate.

4.5.7 Evaluation of Work Processes for ES&H Impact

ES&H concerns are formally addressed by the Fermilab ES&H Manual. Work processes that involve an ES&H component are normally analyzed in this context by line management. Division personnel have become increasingly aware of the necessity to incorporate ES&H concerns to workplace activities. This awareness complements the responsibilities of Division managers to review work processes for ES&H impact. Though certain activities do require formal safety review, most evaluations are done less formally. The Division holds that this approach is more beneficial than a strictly formal one, especially in light of the attitude that ES&H concerns should become integrated with all aspects of Division activity rather than considered separately.

The Division Head will often form safety review committees to assess ES&H impacts related to particular projects. These committees draw upon both intra-Divisional and extra-Divisional expertise while not including individuals that are directly involved with the particular project at hand. The committees report their findings and recommendations for action to the Division Head.

4.5.8 Equipment and Material Storage

Equipment and material that is essential to the Division's ES&H and programmatic objectives is stored such that its integrity is maintained. Access to certain equipment, such as that for the beam interlock safety system, is controlled by lock and key. The Division

also avails itself of storage space provided by the Business Services Section and, in particular instances, space provided by the Technical Support Section.

While the Division attempts to make the best use of available storage space, such space has continued to be inadequate for the activity of the Division. This recurrent problem is largely beyond the scope and control of the Accelerator Division alone.

4.5.9 Calibration of Measuring and Test Equipment

The necessity of calibration and control is dependent upon the application and criticality of the equipment. As an example, the calibration of radiation and portable oxygen sensing equipment is highly controlled with the ES&H Section providing calibration services. The ES&H Section is responsible for this particular program in which the Accelerator Division participates.

The frequency of calibration is often dictated by necessity, as determined by equipment failure, or by equipment availability. Certain equipment is only available for calibration during periods of accelerator shutdown. Non-ES&H related calibration or repair services are normally performed by the Computer Division's Equipment Support Group or by original equipment manufacturers. The Accelerator Division also utilizes the calibration services available from the Technical Support Section on a as needed basis.

The calibration of devices which measure accelerator characteristics and performance are addressed by the Division's Maintenance Management Program

4.5.10 Control of Projects

Fermilab's Project Control System Guidelines document (dated May 1, 1994) defines the controls required for projects costing more than \$100K. Activities that involve costs below \$100K are treated as simple acquisitions according to the PCS Guidelines and are outside the scope of that document. These <\$100K projects are governed by the guidelines given in the Fermilab Field Budget Manual and the Equipment, Plant, and Retirement Unit Catalog Manual. At the discretion of the Division Head, individual cost accounts are established to capture, monitor, and track those projects which fall outside the scope of the PCS Guidelines.

4.6 CRITERION 6: DESIGN

ADAP-01-0001, Accelerator Division Procedure Requirements, requires that procedures be developed for tasks within the Division procedure system at the Division or Department level based on considerations of:

- a. Scale: For large projects or systems that involve multiple organizational units having only partial knowledge of or responsibility for the overall project or system, the corporate tasks and methods should be considered for proceduralization.

- b. Complexity: If a project or system is unusually complex in design or implementation, then the process should be considered for proceduralization.
- c. ES&H Risk: Projects, systems, and tasks involving significant risks to the environment or to the safety and health of personnel and the public should be considered for proceduralization.
- d. Programmatic Risk: Projects, systems, and tasks having the potential for significant impact on Laboratory or Division programmatic goals should be considered for proceduralization.
- e. Regulatory Requirements: Programs, systems, and tasks mandated by regulation (local, State, Federal) should be considered for proceduralization.

Per ADAP-01-0001, responsibility for determining those tasks for which procedures are necessary resides with the Division managers responsible for the activity. In general, the procedures are expected to be oriented to specific tasks, but the procedure system also accommodates establishment of programs for such activities as design control.

Departments may chose to institute ad hoc design controls, via the AD procedure system, or they may institute their own Department-wide design control program, once again via the AD procedure system.

The Division Head may sponsor design reviews on critical projects.

For certain design projects, e.g., Line-Item and General Plant Projects, mandatory DOE or Laboratory practices are already established which must be utilized by the managers responsible for the activity.

When establishing a design control program, the following items should be addressed as appropriate for the types of activities within the program scope:

- a. Project Management Structure
- b. Incorporation of Design Inputs into Design Documents
- c. Design Approval Process
- d. Determination of Design Interfaces and Responsibilities
- e. Validation of Design Inputs, Processes, Outputs, and Changes
- f. Design Review for ES&H Impact
- g. Final Design Validation Process
- h. Design Records Management

4.7 CRITERION 7: PROCUREMENT

The Accelerator Division procurement activities are conducted in accordance with the requirements of the *Fermilab Procurement Policy and Procedures Manual*.

Budget authority within the Accelerator Division is defined and assigned by the Division Head.

It is the responsibility of the individual requisitioner of a procured item, material, or service to specify the appropriate quality requirements.

All procurement actions initiated within the Accelerator Division are reviewed by the Division's ES&H Department for potential environmental impacts and safety and health concerns in accordance with Chapters 5010 and 8060 of the Fermilab ES&H Manual.

Additionally, the Mechanical Support Department has established a Procurement and Fabrication Group to oversee and expedite certain of these activities. The Mechanical Support Department Head has communicated a policy that makes available the services of this Group to the whole Division.

4.8 CRITERION 8: INSPECTION AND ACCEPTANCE TESTING

4.8.1 Inspection and Acceptance Testing for Fabrication, Assembly, Construction, ES&H, and Procurement

ADAP-01-0001, Accelerator Division Procedure Requirements, requires that procedures be developed for tasks within the Division procedure system at the Division or Department level based on considerations of:

- a. Scale: For large projects or systems that involve multiple organizational units having only partial knowledge of or responsibility for the overall project or system, the corporate tasks and methods should be considered for proceduralization.
- b. Complexity: If a project or system is unusually complex in design or implementation, then the process should be considered for proceduralization.
- c. ES&H Risk: Projects, systems, and tasks involving significant risks to the environment or to the safety and health of personnel and the public should be considered for proceduralization.
- d. Programmatic Risk: Projects, systems, and tasks having the potential for significant impact on Laboratory or Division programmatic goals should be considered for proceduralization.
- e. Regulatory Requirements: Programs, systems, and tasks mandated by regulation (local, State, Federal) should be considered for proceduralization.

Per ADAP-01-0001, responsibility for determining those tasks for which procedures are necessary resides with the Division managers

responsible for the activity. In general, the procedures are expected to be oriented to specific tasks, but the procedure system also accommodates establishment of programs for such activities as inspection and acceptance testing. Departments may choose to institute ad hoc inspection and acceptance testing procedures, via the AD procedure system, or they may institute their own Department-wide inspection and acceptance testing program, once again via the AD procedure system.

Procedures addressing inspection and acceptance testing processes should include the identification of essential measurements requiring the use of calibrated instruments, certification of inspection personnel, tagging and segregation of nonconforming items found during inspection and acceptance testing, and documentation of the results of inspections and testing, as appropriate to the task covered by the procedure.

Additionally, the Mechanical Support Department's Procurement and Fabrication Group participates, at times, in the process of inspection and acceptance testing. The resources of this Group are available Division-wide.

4.8.2 Review Process for Experiments and Accelerator Facilities

4.8.2.1 Operational Readiness Clearance Program for Experiments

The Operational Readiness Clearance program for experiments is administered by the Fermilab Research Division. The Accelerator Division participates in the program for a particular experiment as necessary depending upon the location of that experiment and as requested by the Research Division.

4.8.2.2 Readiness Reviews for Accelerator Facilities

The review process for new accelerator facilities and major upgrades follows the outline provided in Appendix 18 of the FQAP. Restart of the accelerators following major shutdowns is addressed in Accelerator Division procedure ADAP-11-0001.

4.9 CRITERION 9: MANAGEMENT ASSESSMENT

4.9.1 Evaluation of Management Infrastructure and Resources

The assessment by management of the effectiveness and adequacy of the management infrastructure and resources is accomplished by:

- a. Regular meetings of the Division Head and Associate Heads;
- b. Regular meetings of the Division Head, Associate Heads, and Department Heads;
- c. Routine communications between the Division managers and the Department managers and their personnel;
- d. Routine communications between the Department managers and supervisors and their Department personnel; and

- e. Annual reviews, coordinated by the Division's representative to the Laboratory Quality Assurance Committee, of the Division MPP and Project and Department MPPs to ensure they are being up-dated to reflect organization and mission changes and to determine if all relevant procedures are referenced.

4.9.2 Reporting of Results of Management Assessments

Assessment reporting to division management is implicit in the meetings and communications described in 4.9.1.a-d. Reporting to Laboratory management is accomplished through regular monthly meetings of the Division Head, Deputy Head, and Associate Heads with the Laboratory Director. In addition, other communications between Division and Laboratory management, both formal and informal, serve to constantly feed back information on Division resources and needs.

The reviews referenced in 4.9.2.e are to be documented in a written report from the Laboratory QA Committee representative to the Division Head and findings entered and tracked in the ESHTRK database.

4.10 CRITERION 10: INDEPENDENT ASSESSMENT

The independent assessment QA function is performed by the Directorate Quality Assurance Office. The Division's involvement is restricted to the following, which are the responsibility of the Division Head to implement:

- a. Providing qualified personnel as requested to serve on audit teams managed by the QA Office;
- b. Responding to findings from the independent assessments in accordance with schedules established by the QA Office; and
- c. Taking action to correct the root causes of deficiencies identified by the independent assessments.

5.0 DISTRIBUTION

This procedure shall be provided to the Standard ADAP Distribution with an additional copy assigned to the Directorate Quality Assurance Office.

RISK ASSESSMENT TABLES

TABLE 1 - QUANTITATIVE RANKING OF RISK OF ES&H AND PROGRAMMATIC IMPACTS

- A = Likely to occur within the next month.
- B = Likely to occur within the next six months.
- C = Likely to occur within the next two years.
- D = May occur within the next ten years.
- E = Low probability of occurring in the operating lifetime of the Laboratory.

LIKELIHOOD OF OCCURRENCE

IMPACTS

		A	B	C	D	E
Environmental Protection	EP1	4000	2000	1000	20	2
	EP2	400	200	100	2	0.2
	EP3	40	20	10	0.2	0.02
Public Safety and Health	PSH1	6000	3000	1500	30	3
	PSH2	600	300	150	3	0.3
	PSH3	200	100	50	1	0.1
	PSH4	60	30	15	0.3	0.03

LIKELIHOOD OF OCCURRENCE

IMFACTS

A B C D E

	A	B	C	D	E	
Site Personnel Safety and Health	SPSH1	2000	1000	500	10	1
	SPSH2	500	250	125	2.5	0.25
	SPSH3	200	100	50	1	0.1
	SPSH4	50	25	12.5	0.25	0.025
	SPSH5	20	10	5	0.1	0.01
	SPSH6	2	1	0.5	0.01	0.001

LIKELIHOOD OF OCCURRENCE

IMPACTS

A B C D E

	A	B	C	D	E
Programmatic Impact	1000	500	250	5	0.5
PI1 Critical negative impact on Division Programmatic Objectives. Impacts include interruptions of more than six months in the Laboratory's Physics program or extension of scheduled downtime by more than six months.	500	250	125	2.5	0.25
PI2 Major negative impact on Division Programmatic Objectives. Impacts include interruptions or extensions of between one and six months in the Laboratory's Physics program or scheduled downtime.	200	100	50	1	0.1
PI3 Moderate negative impact on Division Programmatic Objectives. Impacts include interruptions or extensions of between one week and one month in the Laboratory's Physics program or scheduled downtime.	50	25	12.5	0.25	0.025
PI4 Minor negative impact on Division Programmatic Objectives. Impacts include interruptions or extensions of between two days and one week in the Laboratory's Physics program or scheduled downtime.	20	10	5	0.1	0.01
PI5 Negligible negative impact on Division Programmatic Objectives. Impacts include interruptions or extensions of between eight hours and two days in the Laboratory's Physics program or scheduled downtime.	5	2.5	1.25	0.025	0.0025
PI6 Expected and/or routine negative impact on Division Programmatic Objectives. Impacts include interruptions or extensions of between one and eight hours in the Laboratory's Physics program or scheduled downtime.					

LIKELIHOOD OF OCCURRENCE

IMFACTS

A B C D E

	A	B	C	D	E
Investment Impact					
II1	2000	1000	500	10	1
II2	1000	500	250	5	0.5
II3	200	100	50	1	0.1
II4	50	25	12.5	0.25	0.025
II5	20	10	5	0.1	0.01

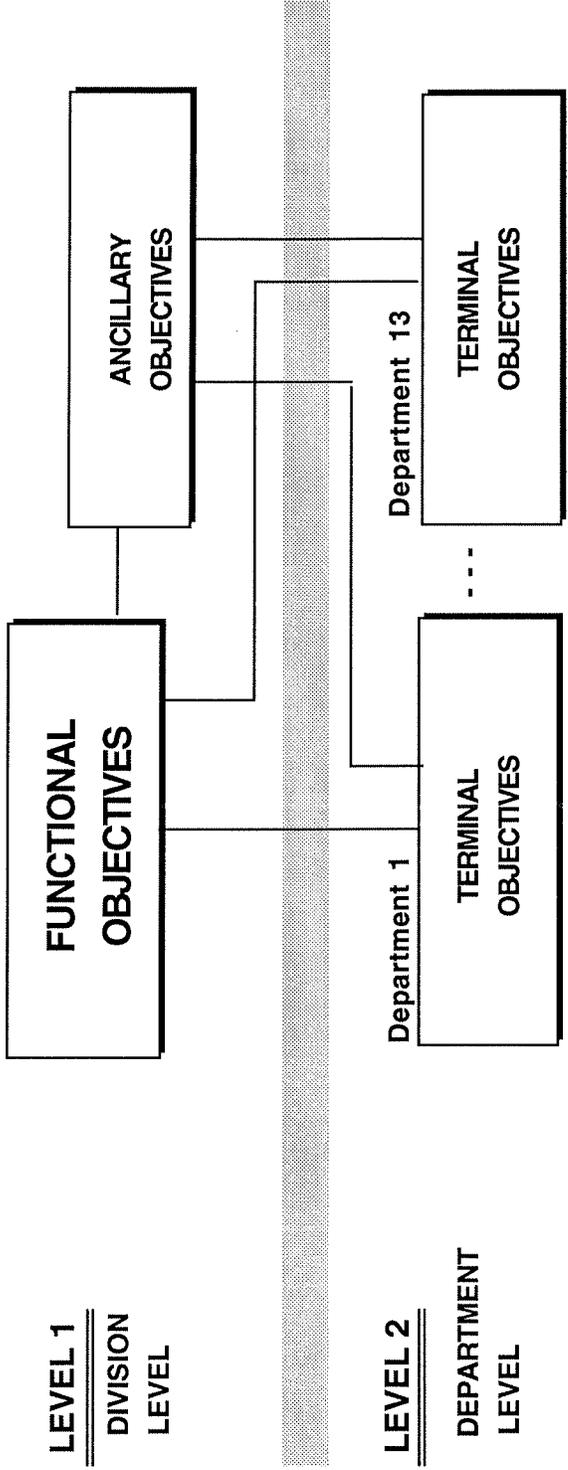
TABLE 2 - QUANTITATIVE RANKING OF SELECTED CHARACTERISTICS OF AN ORGANIZATION, ACTIVITY OR PROJECT

Scale	S1	Large scale projects or systems that involve more than three Accelerator Systems Departments and at least three Accelerator Support Departments. Also included are projects that involve significant commitment of staffing resources so as to present potential conflict with the established Division priorities.	500
	S2	Medium scale projects or systems that involve significant effort on the part of personnel from at least four Accelerator Division Departments.	50
	S3	Small scale projects or systems that involve significant effort on the part of personnel from less than four Accelerator Division Departments.	5
Compliance	CPL1	The activity or equipment is regulated by Federal, State, or local laws. Deviation from regulatory requirements normally presents the possibility of significant legal action or fine.	150
	CPL2	The activity is regulated by safety and health significant DOE Orders and the present state of compliance is construed as minimal.	75
	CPL3	The activity or equipment is regulated by Federal, State, or local laws or by safety and health significant DOE Orders and the present state of compliance is construed as largely in place.	20
	CPL4	The activity or equipment is in compliance with applicable laws and/or orders but there exist significant deviations from best management practices in the execution of the activity or operation of the equipment.	1
Cost	CST1	The materials and supplies cost for the activity is more than \$10,000k in any given twelve month period.	1000
	CST2	The materials and supplies cost for the activity is more than \$1,000k in any given twelve month period.	100
	CST3	The materials and supplies cost for the activity is more than \$100k in any given twelve month period.	10
	CST4	The materials and supplies cost for the activity is more than \$50k in any given twelve month period.	5

Complexity and/or Uniqueness of Design	CUD1	Highly complex or unique design, typically involving multiple systems and infrequently applied or innovative concepts. Such activities routinely involve the direct efforts of senior technical or scientific staff and require multi-disciplinary technical input..	200
	CUD2	Moderately complex or unique design, possibly involving multiple systems and some application of infrequently applied or innovative concepts. Activity under supervision of senior technical or scientific staff.	20
	CUD3	Design activity involves common application of standardized techniques and disciplines. Design concepts readily understood by technical or scientific staff.	2

Safety and Quality History	SQH1	The safety and quality history of an activity, system, or equipment is much less than desired or expected. An inordinate amount of resources are necessary to support remediation of the inadequacy. Direct impact on the Division's functional objectives. Effort is planned/in-progress or should be initiated to fix the problem.	500
	SQH2	The safety and quality history of an activity, system, or equipment is less than desired or expected. The amount of resources necessary to support remediation of the inadequacy sometimes interfere with Division or Department objectives.	50
	SQH3	The safety and quality history of an activity, system, or equipment is about as expected. Improvements could be made to remediate deficiencies.	5

ACCELERATOR DIVISION FUNCTIONAL ANALYSIS



FUNCTIONAL ROLES, RESPONSIBILITIES, AND AUTHORITIES
OF ACCELERATOR DIVISION MANAGEMENT

1.0 Accelerator Division Head

The Accelerator Division Head retains ultimate authority and responsibility for the achievement of Division performance objectives as listed in §2.0 of this document. Specific responsibilities are described in the Accelerator Division MPP, the Accelerator Division Self Assessment Plan, the Accelerator Division ADSP series, and in Chapter 1030 of the Fermilab ES&H Manual. General duties beyond those specified in these documents include:

- a. Develop an organizational structure suitable to the achievement of the Accelerator Division performance objectives;
- b. Define accelerator performance goals in consultation with the Fermilab Directorate;
- c. Assess effectiveness of the Division in achieving performance objectives;
- d. Assist the Director in the selection of Deputy and Associate Heads;
- e. Designate Accelerator Division Department Heads;
- f. Implement Laboratory policy;
- g. Determine Division priorities;
- h. Assign budget allocations within the Division;
- i. Approve Division wide training requirements;
- j. Monitor performance of AD Headquarters personnel; and
- k. Respond to administrative requests from Directorate.
- l. Address security issues raised by Lab Security personnel.

The Accelerator Division Head is appointed by and reports to the Fermilab Director.

NOTE The RRAS in Sections 2.0 to 8.0 below may be delegated to other division personnel by the Division Head at his/her discretion.

2.0 Accelerator Division Deputy Head

The Accelerator Division Deputy Head is appointed by the Fermilab Director and reports to the Division Head. In the Division Head's absence the Deputy will serve with the same authorities and responsibilities as the Division Head. The Deputy has the following specific duties:

- a. The Deputy is responsible for coordinating the preparation of the annual budget request (WPAS).
- b. The Deputy serves as the project coordinator for R&D projects, but not line item construction projects, which are assigned Project Managers reporting directly to the Division Head.
- c. The Deputy will assist the Division Head in matters having to do with scientific staffing in the Division.
- d. The Deputy will serve as Division liaison to organizations outside Fermilab.
- e. The Deputy will accept other assignments at the discretion of the Division Head.

3.0 Accelerator Division Associate Heads

The four Associate Division Heads are appointed by the Fermilab Director and report to the Division Head. The Associate Heads are expected to maintain close contact with and coordinate the activities of their Departments while serving to implement Division wide policies and objectives. The Associate Heads will serve as part of the AD line management, reporting directly to the Division Head and overseeing the Departments on all issues of ES&H, QA, and other policy. The Associate Heads have several parallel sets of responsibilities including:

- a. In consultation with the other Associate Heads and the Division and Deputy Head implement Division policies through the Departments;
- b. Oversee budgeting and planning for their Departments;
- c. Preparation of the WPAS. The Associate Heads take a direct role in this activity by coordinating preparation of all WPAS documentation from their Departments;
- d. Participate in the development of Division long-range planning goals;
- e. Review and standardize Departmental documentation, including that related to ES&H and QA program implementation;
- f. Establish priorities and job assignments in consultation with the Department Heads;
- g. Adjudicate boundaries of responsibility between the Departments; and

h. Accept other assignments on an ad-hoc basis from the Division Head.

3.1 Accelerator Division Associate Head for Administration, Environment, Safety, & Health

The Associate Head for AESH is primarily responsible for advising the Division Head on policy regarding AES&H matters. The Associate Head for AESH will be assisted by an Assistant Division Head, who also serves as the Division's representative to the Laboratory QA Committee. In addition to the common responsibilities listed above the Associate Head for AESH will:

- a. Advise the Division Head on interpretation of Directorate implementation plans;
- b. Assure uniformity of implementation of Laboratory policy within in the Division;
- c. Track Accelerator Division costs;
- d. Serve as Accelerator Division representative on the Fermilab ES&H Policy Advisory Committee (ESHPAC);
- e. Coordinate implementation of the Division's ES&H Self-Assessment Plan;
- f. Serve as or designate the Accelerator Division liaison to the Business Services Section, including for security matters;
- g. Serve as or designate the Accelerator Division liaison to the ES&H Section;
- h. Serve as or designate the Accelerator Division liaison to the Laboratory Services Section;
- i. Maintain the Accelerator Division Documentation Center;
- j. Maintain the Accelerator Division Organization Chart;
- k. Maintain Accelerator Division Administrative and ES&H Procedures (ADAPs and ADSPs) and other controlled documents, and provide for proper distribution of these procedures and documents; and
- l. Supervise the ES&H Department Head.

3.2 Accelerator Division Associate Head for Fermilab III

The Associate Head for Fermilab III serves as Project Manager on the Fermilab Main Injector Project. The Associate Head's primary responsibility is support for planning, budgeting, and scheduling, and coordination of design and construction of the FMI as described in the FMI Project Management Plan. The Associate Head is assisted by the Main Injector Department Head and three department deputies--one for Administration, one for Accelerator Systems, and one for Civil

Construction. In addition to the common responsibilities listed above the Associate Head for Fermilab III will:

- a. Interact closely with the Associate Heads for Engineering and Operations to assure proper definition of requirements for fabrication and installation of FMI technical components;
- b. Interact closely with the Associate Head for AESH to coordinate certain budget matters for plant line and operating funds, and to coordinate ES&H and QA matters between the Division and the Main Injector Project;
- c. Serve as liaison to FESS on all issues relating to civil construction design criteria and specification relating to the FMI project;
- d. Assume responsibility for preparation of all required project documentation;
- e. Organize and coordinate reporting information;
- f. Organize and coordinate project performance measurement systems;
- g. Coordinate permitting activities;
- h. Oversee development of all accelerator systems specifications;
- i. Oversee the Main Injector R&D program;
- j. Serve as the project coordinator for AIP projects; and
- k. Supervise the Main Injector Department Head.

3.3 Accelerator Division Associate Head for Engineering

The Associate Head for Engineering is primarily responsible for coordination of activities of the Engineering Departments. In addition to the common responsibilities listed above the Associate Head for Engineering will:

- a. Coordinate job assignments within the Engineering Departments to facilitate the activities of the Operations and Main Injector Departments;
- b. Serve as liaison to Facilities Engineering Services Section on issues related to civil construction exclusive of the Fermilab Main Injector project;
- c. Serve as liaison to the Computing Division;
- d. Serve as the project coordinator for GPP projects, but not line item construction projects, which are assigned Project Managers reporting directly to the Division Head.
- e. Supervise the following Department Heads: Controls, Cryogenic, E/E Support, Mechanical Support, and RF and Instrumentation.

3.4 Accelerator Division Associate Head for Operations

The Associate Head for Operations is primarily responsible for coordinating the activities of the accelerator departments. In addition to the common responsibilities listed above the Associate Head for Operations will:

- a. Coordinate accelerator operations and designate run coordinators with the acquiescence of the Division Head;
- b. Serve as liaison to the Research Division;
- c. Serve as liaison to the Technical Support Section;
- c. Serve as liaison to the Fermilab Physics Department; and
- d. Supervise the following Department Heads: Accelerator Operations, Antiproton Source, Neutron Therapy Facility, Main Accelerator, and Proton Source.

4.0 Accelerator Division Assistant Head for AES&H

The Accelerator Division Assistant Head for AES&H is appointed by the Division Head and reports to the Associate Division Head for AES&H. The Assistant Head advises and assists the AES&H Associate Head in all of the latter's areas of responsibility. In addition the Assistant Head for AES&H serves as the Accelerator Division representative to the Laboratory QA Committee.

5.0 Accelerator Division Experimental Coordinator

The Accelerator Division Experimental Coordinator is appointed by and reports - for those duties related to the Experimental Coordinator position - to the Division Head. The Experimental Coordinator advises Division management on tests and experiments proposed to be performed inside the accelerator enclosures, other than the major collider experiments (CDF and D0) and scheduled beam studies. This advice is based on evaluations of the expected impacts of such proposals on the accelerators or their beam lines, as well as the results of safety reviews related to these activities. The Experimental Coordinator serves as the principal Accelerator Division contact for the collaborations up to and including creation of a signed Memorandum of Understanding (MOU), and arranges for liaisons for the collaborations from the appropriate Accelerator Division Departments. Under the coordination of the Experimental Coordinator, these liaisons assist the collaborations in implementing the MOU for the collaboration.

6.0 Accelerator Division Headquarters Assistant

The Accelerator Division Headquarters Assistant is appointed by and reports to the Division Head. The Assistant performs administrative functions in support of the Accelerator Division Head including but not limited to:

- a. Maintaining Accelerator Division personnel records and coordinating personnel actions;
- b. Serving as Accelerator Division foreign travel coordinator;
- c. Arranging interview for candidates for scientific positions; and
- d. Serves as Accelerator Division Records Coordinator.

7.0 Accelerator Division Financial Executive and Budget Officer

The Accelerator Division Financial Executive and Budget Officer is responsible for:

- a. Establishing and monitoring divisional cost/budget reports/activity throughout the Fiscal Year and providing status reports to Division Management, the Laboratory Budget Officer and the Directors Office, as requested;
- b. Preparation and submission of the annual WPAS cost estimates;
- c. Monitoring and changing as appropriate the financial segment of the Accelerator Division's Construction and Improvement projects;
- d. Cost estimation for Division Sales; and
- e. Cost distribution rate calculations.

8.0 Accelerator Division Department Heads

Department Heads are appointed by the Division Head. All Department Heads in the Division report to one of the Accelerator Division Associate Heads, except for the Head of the Accelerator Physics Department who reports to the Division Head. The reporting line is defined through the most recently approved Accelerator Division organization chart. The Department Head has many specific responsibilities as described in the Accelerator Division MPP and the Accelerator Division ES&H Self- Assessment Plan. General duties beyond those specified in these documents include:

- a. Develop an organizational structure suitable to the achievement of the Department performance objectives;
- b. All general supervisory duties described in the Fermilab ES&H Manual, Chapter 1030, Section A.5;
- c. Coordinate assignment of personnel;

- d. Coordinate assignment of tasks and prioritization/allocation of resources;
- e. Develop and maintain Departmental procedures in accordance with ADAP-01-0001.
- f. Determine training requirements;
- g. Monitor performance of personnel;
- h. Assess effectiveness of the department in achieving performance objectives; and
- i. Respond to administrative requests from Division Headquarters including but not limited to
 - 1) Preparation of budgets,
 - 2) Status reporting, and
 - 3) Implementation of lab policy, based on Division guidance.

