

FESHM 8010: ENVIRONMENTAL MANAGEMENT SYSTEM

Author	Description of Change	Revision Date
E. Mieland	<ul style="list-style-type: none"> • Streamlined narratives describing historical process involved in the development of the EMS. • Applicable standards updated. • All sections under Program Descriptions have been updated. • Removed methodology for conducting process assessments. • Included current ISO 14001 registration certificate. 	November 2013
P. Kesish	Included additional responsibilities for D/S heads and EOs, clarification of Work Smart Review, additional information on document control.	April 2008
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INTRODUCTION

Fermilab's Environmental Management System (EMS) is an integrated system of managing activities, training and communication to achieve environmental objectives. The EMS describes the Laboratory's program for execution and evaluation of programs for protecting the environment, assuring compliance with applicable environmental standards and avoiding adverse environmental impacts through an effort of continual improvement. The [FESHM 8000](#) chapter series describes certain key program elements under this management system.

Fermilab's policy for environmental protection is described in the [Director's Policy](#). The policy identifies the major goals under which the Laboratory's efforts are directed to meet the EMS program objective.

Fermilab's EMS is certified to ISO 14001. The EMS first became registered to the standard in 2007. The certification is maintained on a three year renewal cycle which includes biannual surveillance audits performed by a third party organization.

DEFINITIONS

Activities, Products, and Services – A catchall phrase that captures all of the elements at Fermilab that can interact with the environment

Continual Improvement –Recurring process of enhancing the environmental management system to achieve improvements in overall environmental performance consistent with the Laboratory environmental policy.

Environmental Aspect – Any element of the Laboratory's activities, products, or services that can interact with the environment. This is analogous to the concept of "hazard" in safety, although an aspect under EMS can also be beneficial. The term 'significant' is applied to those aspects that have or can have a significant impact and thus rate as priority areas for establishment of Environmental Management Initiatives.

Environmental Impact – Any change (completely or partially) to the environment, whether adverse or beneficial, resulting from the Laboratory's environmental aspects.

Environmental Management Initiative (EMI) – A mechanism used to establish, manage, control, and mitigate the potential impacts of specific Laboratory activities with significant environmental impacts.

Environmental Objective – An overall environmental goal that the Laboratory seeks to achieve, and which is quantified where practicable

Environmental Performance – Measurable results of the Laboratory's EMS, related to the control of environmental aspects, based on the environmental policy, objectives, and targets.



Environmental Policy – A statement by the Laboratory of its overall intentions and direction related to its environmental performance as formally expressed by top management. It provides a framework for action and for the setting of environmental objectives and targets.

Environmental Target – A detailed performance requirement, quantified where practicable, and applicable to the Laboratory, which arises from the environmental objectives and needs to be set and met to achieve those objectives.

Hazard Analysis (HA) - The process by which hazards associated with a job or project are identified, analyzed, mitigated, and documented. The HA document shall describe each phase of work, identify all hazards associated with each phase, and the work processes to be employed to eliminate or reduce those hazards. “Hazard” in this context shall be deemed to include potential negative environmental impacts. As the project develops, new or unanticipated hazards encountered with each project phase or change in specific operations within that phase are addressed and added to the HA. By the completion of the project, the HA has evolved into a specific and detailed job hazard analysis of the entire project.

Operational Controls – Procedures that help implement the environmental policy, objectives and targets.

Senior Management – The level of management that has the authority to make decisions for the facility

Significant Environmental Aspect – An environmental aspect that has or can have a significant environmental impact

RESPONSIBILITIES

The Laboratory Director is responsible for:

- Ensuring that the Laboratory’s ESH&Q program has adequate support and is effectively implemented.
- Documenting the Environmental Policy.
- Reviewing the EMS periodically with an eye toward continual improvement.

Division/Section/Center Heads:

- Ensure that their organization adheres to the Laboratory’s EMS and that the environmental consequences of their operations are recognized and understood.
- Assign an Environmental Officer (EO) as representative to the Environmental Protection Subcommittee (EPS).
- Support the efforts of the EO in determining significant aspects for projects originating from within the Division, Section or Center (D/S/C).
- Support the EP Subcommittee in developing and implementing Environmental Management Initiatives by providing subject matter experts, as needed, to Environmental Management Initiative panels.



- Ensure that all subordinate documents developed by their D/S/C are consistent with and in support of the Fermilab's Environmental Management System and identifying significant environmental aspects and ensuring that they meet control requirements.

Environmental Officers:

- Advise and inform their respective organizations on matters related to the Laboratory's Environmental Management System.
- Interpret FESHM and assist D/S/C personnel with environmental programs, policies and requirements.
- Provide consultation for all D/S/C activities and projects to identify potential environmental impacts; evaluate compliance with applicable requirements; and when possible, mitigate impacts.
- Serve and represent the D/S/C as a member of the Environmental Protection Subcommittee.
- Assist with the determination of significant environmental aspects as they relate to activities occurring in the D/S/C.
- Maintain and provide information necessary to meet environmental reporting requirements for the laboratory.
- Maintain and provide information necessary to improve environmental performance and/or meet EMI milestones.
- Coordinate the management of environmental permit conditions under direct D/S/C control.
- Serve as a liaison during environmental audits and inspections.
- Coordinate environmental (including NEPA) review activities.

The Environmental Protection Subcommittee works within the structure of the Fermilab ESH Committee and is responsible for:

- Developing and maintaining a list of environmental aspects for Laboratory activities.
- Acting as a functional group for reviewing Laboratory activities and projects to determine environmental aspect and compliance issues.
- Maintaining a process for establishing, evaluating and approving goals/objectives and targets.
- Providing support for management review of the EMS.

The Fermilab Sustainability Committee (FSC):

- Provide guidance to the Laboratory concerning the commitment to the general concept of Sustainability in our operations and the implementation of the requirements in the DOE Strategic Sustainability Performance Plan (SSPP).
- Advance the principles and practice of sustainability and to advise the Laboratory on the most effective ways to meet our commitments as required by the DOE SSPP.
- Seek creative solutions to the problems faced in attaining sustainable operations at Fermilab.
- Provide input and suggestions for the annual update to the Fermilab Site Sustainability Plan.



The Environment, Safety, Health and Quality (ESH&Q) Section will:

- Provide necessary training on the Lab's EMS commensurate with employee responsibilities.
- Designate the Environmental Management Systems Coordinator.
- Maintain information on the Lab's EMS and related documents.
- Ensure effective management of procedures and other system documents.
- Identify potential emergencies and develop procedures for preventing and responding to them.
- Monitor key activities and track performance.
- Conduct periodic assessments of compliance with legal and other requirements.
- Maintain and manage records of EMS performance.
- Periodically verify that the Lab's EMS is operating as intended.
- Maintain a process for identifying and providing access to relevant laws and regulations, as well as other requirements to which the Laboratory adheres.
- Provide resources and expertise as necessary to supplement Division/Section/Center resources.
- Prepare and implement environmental monitoring and surveillance programs.
- Prepare and submit to regulatory agencies environmental permit applications.
- Serve as the primary point of contact between the Laboratory and regulatory agencies.

The ESH&Q Section, Environmental Management System Coordinator will ensure that the EMS is established, implemented and maintained in accordance with the requirements of the applicable standards.

All Employees will:

- Recognize and understand the environmental consequences of their current and planned job duties.
- Identify, plan and manage operations and activities in line with Fermilab's policy for environmental protection.

APPLICABLE STANDARDS

Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management

Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance

ISO 14001:2004(E), Environmental Management Systems – Requirements with guidance for use

DOE Order 436.1 Departmental Sustainability



PROGRAM DESCRIPTION

EMS Elements

The core components of Fermilab's EMS are documented in this chapter through descriptions of the principal elements along with their associated sub-elements.

1. Planning and Aspects Identification

Identification of facility activities and listing of environmental aspects

The Environmental Protection Subcommittee has identified the significant aspects of Laboratory processes to include Releases, Materials, Energy, and Site Management. Each of these significant aspects is further subdivided at the line level into categories and general activities. The Subcommittee reviews this list annually to ensure all operational impacts are included.

Impact analysis

Programs and processes that identify environmental aspects and analyze the impacts of proposed purchases, projects and experiments can be found in [FESHM](#). These include:

- National Environmental Policy Act (NEPA) Review Policy (Chapter 8060),
- Work Permit and Notification (Chapter 2020),
- Work Planning and Hazard Analysis (Chapter 2060),
- ES&H Program for Construction (Chapter 7010),
- Subcontractor Safety – Other than Construction (Chapter 7020),
- Excavation (Chapter 7030)
- Planning and Review of Accelerator Facilities and Their Operations (Chapter 2010)

These programs and processes overlap somewhat depending on the size and scope of the purchase, project or experiment. However, they serve to address the impacts on the environment that may occur as a result of going through with the proposed purchase, project or experiment.

The NEPA review process is a mechanism that ensures that specific impacts of government proposed projects are reviewed and the environmental information provided is useful to decision-makers and the public. Whether the project is reviewed as categorical exclusion or requires a higher level of review such as an environmental assessment, or an environmental impact statement, it is designed to inform broader assessments of environmental significance under the regulations model for DOE.

The Work Permit and Notification process is another communication mechanism for relating potential environmental aspects. This communication is within the Laboratory's internal structure and is meant as a work planning tool to provide timely notification of a proposed activity that will have an impact beyond a particular organizational group and/or the specific system or area affected by the work. It identifies the specific permits, training, and organizations that need to be notified before work can commence. It also acts as a reminder and checklist to identify hazards



that are controlled by requirements specific to Fermilab and documents the authorization to commence work by the landlord Division/Section/Center.

The Work Planning and Hazard Analysis process is an integral part of the work planning process and is a requirement of anyone performing work at Fermilab, including employees (temporary or full-time), visitors and subcontractors. It is a mechanism for identifying and mitigating the hazards in any work activity and assures that the hazards and environmental impacts are defined, understood, and anticipated, whether they are inherent to or resulting from the activity.

The ES&H Program for Construction and the Subcontractor Safety-Other than Construction processes are programs used to identify new environmental aspects of construction projects and other subcontracted work. The goal being continued improvement in design and maintenance through communication and evaluation during all project development phases, including design, procurement, construction and post construction.

The requirements outlined in the Excavation Chapter (a.k.a. JULIE) include a Fermilab internal process that must be followed when a phase of work requires an excavation. It provides the guidance regarding the actions that must be followed to obtain an excavation permit prior to any activity that requires penetration of the soil.

The Planning and Review of Accelerator Facilities and Their Operations process is a formal review procedure that assures that accelerator facilities and their operations comply with Fermilab ES&H standards. It not only applies to new projects but also to existing projects when significant modifications occur. The process is documented through the Safety Assessment Documentation process. The level of review and documentation is determined by the Director's Office through the ESH&Q Section.

The Comment and Compliance Review process (Construction Design Review) is another mechanism used to identify new environmental aspects of construction projects. The goal being continued improvement in design and maintenance through communication and evaluation during all project development phases, including design, procurement, construction and post construction. The process is managed by FESS.

2. Legal and Other Requirements

Regulatory

The Work Smart Set of Standards itemizes all the ES&H laws, regulations, and standards to which Fermilab must adhere. FESHM Chapter 1070 describes the procedure for how Fermilab's work activities, the hazards associated with the work and the standards and regulations are reviewed on an annual basis and revised as needed. The procedure also allows for the review and addition of new standards and regulations promulgated by DOE or other agencies/organizations. The standards set is part of the Fermilab/FRA contract with DOE. Relationships in environment, safety and health matters among Fermi Research Alliance, LLC (FRA), the U.S. Department of Energy (DOE) and other regulatory agencies external to DOE are addressed in FESHM 1010.



Other Requirements

The Laboratory recognizes that there are programmatic elements that are integral to managing environmental impacts. Elements that are covered by specific plans include but are not limited to, waste minimization and pollution prevention, cultural resource protection, groundwater protection, surface water protection, wild land fires control, natural resource and land management, air pollution management, ozone depleting substances management, and a strategy for stewardship and monitoring that covers the monitoring of environmental media and biota.

Waste minimization/Pollution Prevention (FESHM Chapter 8022) is an integral part of the Laboratory's operating philosophy. Each D/S/C is encouraged to set their own goals based on the Laboratory's goals. Procedures cover source reduction and recycling. Progress toward meeting waste reduction goals are reported to DOE and to EPA.

The process for preservation and management of cultural resources is documented in the [Cultural Resource Management Plan](#) pursuant to the National Historic Preservation Act and State of Illinois legislation. This plan was prepared to fulfill the responsibility of DOE under the National Historic Preservation Act. Fermilab maintains a web-site titled, "[History and Archives Project](#)." This site offers guided access into the laboratory's historical records for the research user. It contains permanently-valued government records that are preserved and available for reference and research by both Fermilab and the general public.

The [Groundwater Protection Management Plan](#) integrates groundwater protection requirements among site programs and activities to ensure that federal, state, county, local and other requirements are incorporated in a consistent, effective manner. The plan is an effort to eliminate or minimize adverse impacts of the Laboratory's operations on groundwater, determine the extent and understand the impact of past activities, remediate adversely affected areas, and monitor current operations.

Fermilab ensures that its actions conform to Illinois' State Implementation Plan to attain and maintain national ambient air quality standards through conformance with Title 35 Subpart B of the Illinois Administrative Code. The procedure for this process is outlined in FESHM chapter 8080, Air Emission Control Program.

The management of ozone depleting substances is defined in FESHM chapter 8081, Refrigeration Management. The Laboratory is committed to ensuring that its operations significantly reduce the use of ozone-depleting substances where practicable through recovery, recycling and conservation programs and minimizing the emissions of these substances to the atmosphere with a goal of ultimately phasing out their use. This will also be accomplished through the maximization of the use of alternatives. The FESS Operations Group has the responsibility for the Laboratory's overall compliance with the refrigerant regulations associated with the EPA's Clean Air Act. The refrigeration management strategy includes a site Refrigeration Manager to oversee the program, use of an electronic refrigerant management program database, and communication of responsibilities to building managers.



Fermilab is committed to pursuing sustainable operational practices. To that end the Laboratory annually publishes a Site Sustainability Plan. The plan addresses specific goals set by DOE as required by Executive Order 13514, targeting greenhouse gas reduction and improving the environmental footprint of federal facilities. The plan is annually submitted to DOE Office of Science.

The stewardship of the site's natural resources is overseen by the Ecological Land Management Committee (ELM). Its purpose is to recommend land management practices based on sound ecological principles that enhance the natural resources of the Laboratory. Plans for managing the available areas of the Laboratory site are documented in the [ELM Committee's Land Management Plan](#). Controlled burning of land is an essential component of the overall land management plan at the Laboratory. The Fermilab Site Office of DOE demonstrated to the Office of Science that it has an effective review process and understanding of the prescribed burning program at Fermilab. The controls for this program are described in the Fermilab Non-Structural Fire Management Plan. The plan consolidates information from various sources and sets forth Fermilab's policy regarding prescribed and unplanned fires other than at structural units.

3. Objectives, Goals and Targets

The underlying emphasis of any organization that adopts and implements an EMS is continual improvement. The Environmental Management Initiative (EMI) is a mechanism for tracking continuous improvement by the Laboratory. This mechanism allows for environmental aspects that are identified to be significant in their impact to the environment be examined, and then ideas generated and tested to reduce the impact. These ideas should be realized through the establishment of objectives, goals and targets. To ensure effectiveness, the EMI needs to define not only what the improvement is but also what means will be used to achieve it, who is responsible, and the time frame that will be used to monitor achievement. The process must allow for modification of any element along the path of implementation to ensure that the focus is on continual improvement. Appendix B: Mechanism for Determining Goals/Objectives, and Targets, describes Fermilab's process.

Additionally, Fermilab is committed to advancing DOE's sustainability goals as described in its Strategic Sustainability Performance Plan. In response the Laboratory has developed a Site Sustainability Plan that documents Fermilab's contribution towards meeting specific goals. The primary emphasis of the plan is for the reduction of greenhouse gas emissions related to site operations. The plan also addresses goals that include operating buildings more efficiently, reducing water consumption, reduced fossil fuel consumption for vehicle fleets, sustainable acquisition (buying green), and improving energy consumption from computers and data centers.

4. Resources, Roles, Responsibility and Authority

Successful implementation of an EMS requires clear articulation of environmental responsibilities across the various elements of the Laboratory. Specific roles and responsibilities have been described previously (see Responsibilities section). Further descriptions of ESH&Q roles and responsibilities are outlined in FESHM Chapter 1030. They are also articulated to service



subcontractors through the contractual Exhibit A, FESHM Chapter 7020, and time and material and fixed-price contracts in FESHM Chapter 7010.

5. Competence, Training and Awareness

Preparing Laboratory workers to perform their activities in a safe manner with regard for the environment is a vital part of the research effort (see FESHM 2070). All employees and contractors working at Fermilab receive general training that includes environmental and emergency response information. Individual Training Needs Assessments (ITNAs) are generated for all employees. The ITNA assists in identifying the compliance-related training required for each employee.

Four modules have been developed to provide EMS training that is commensurate with the employee's responsibilities. The training includes the following modules with their learning objective:

- 5.1. General Awareness/New Employee Training – provide the general worker with an increased awareness of their potential workplace impacts on the environment and the motivation to “re-think” how they work.
- 5.2. Construction Coordinator/Task Manager Training – provide individuals who are the first line of contact with subcontractors that perform work on site with an increased knowledge of compliance and waste minimization/pollution prevention concepts. This module goes more in-depth to include compliance requirements and specific pathways for contamination of the environment.
- 5.3. EMS Team Training – provide individuals with specific training on the development and implementation of an EMS and the special requirements of Division/Section/Center representatives.
- 5.4. Senior Management Training – provide senior management with a summary description of the EMS process, including their responsibilities as they apply to the successful implementation of an EMS and the expected benefits to be derived from such implementation.

In addition, subcontractors are informed of their requirements under the system through Subcontractor Orientation training. Part of this training involves presentation of information contained on the Subcontractor Information Sheet. Other elements are presented as part of their integration within other ES&H concerns.

Individuals within the ESH&Q Section, Environmental Protection Group with responsibilities for regulatory oversight and all Environmental Officers have requirements within their Individual Training Needs Assessment to receive training on regulatory requirements and they are required to engage in ongoing continual education.



6. Communication

Mechanisms for communication, both within the Laboratory (horizontally and vertically) and with externally interested parties, are vital for the EMS to work efficiently and effectively. A major goal of communication, both internal and external to the Laboratory is the recognition of environmental issues so that they can be addressed effectively. With regulations it is vital that accurate information on the requirements contained within a regulation or permit obtained as a result of a regulation be transmitted to all potentially affected or interested parties. Interested parties external to the Laboratory must have avenues by which they can access information that tells them what type of activities exist at the Laboratory, to what extent those activities affect the environment and what programs are in place within the Laboratory to reduce or mitigate those affects.

The Office of Commination is the key organization dealing with matters related to public inquiry. External communications occur via multiple mechanisms that include dedicated websites covering particular topics. For specific topics where public opinion is of value, the Laboratory may seek input from the Community Advisory Board, with membership reflective of Fermilab's neighbors.

Internal communication of the environmental requirements and programs at the Laboratory occurs via line management, under the guidance of D/S/C ES&H departments. Specific documents outline the components of the EMS. The major documents detailing information directed to the entire employee population are the Director's Policies and FESHM (see especially chapter 1010 – Laboratory Environment, Safety and Health Policy and Its Implementation). Other minor documents include reports and memos that circulate within smaller functional groups. General information intended for the entire Laboratory population is transmitted via [Fermilab Today](#), an electronic daily publication. Verbal exchanges of ideas are made possible through committee meetings, training, and *ad hoc* conversations.

Annually the Laboratory publishes the [Environmental Report to the Director](#). This document details the Environmental Protection Program, which establishes the policies and procedures to ensure compliance with regulatory requirements imposed by Federal, State and local agencies and with DOE orders, as well as providing for the measurement and interpretation of the impact of Laboratory operations on the public and the environment via the Environmental Monitoring Program. The Laboratory also encourages face-to-face meetings between specified representatives and community groups.

7. Documentation and Document Control

Fermilab has established and maintains information to describe the EMS. In general, Fermilab documents specifying policies, prescribing processes, or establishing design specifications and requirements are controlled per the Document Management & Control Policy.

Conformance with document control elements is the responsibility of the individual D/S/C or line organization in accordance with FESHM Chapter 1051. Any organization with documents under



the EMS will have processes in place to ensure that documents meet the requirements of document control.

8. Operational Control

Operational controls are essentially procedures for ensuring that operations and activities are carried out under specified conditions or performance standards and do not violate regulatory compliance limits. They include specific operating criteria or specifications in the case of equipment maintenance, pollution control equipment, and production processes which must be managed within specified parameters to achieve desired optimization.

9. Emergency Response and Preparedness

The identification of potential emergency situations and potential accidents that can have an impact(s) on the environment and appropriate mechanisms of response are outlined in FESHM Chapter 2040. This chapter provides a general description of Fermilab's emergency preparedness program which is detailed in the Comprehensive Emergency Management Plan (CEMP), Fermilab Hazard Assessment Document, and local emergency procedures. The purpose of the CEMP is to establish and document overall policy and assign and describe the organizational structure, interfaces, resources, decision-making processes and actions for the Emergency Management System. It provides the framework for comprehensive and integrated planning, preparedness and response to serious abnormal incidents involving the environment.

10. Monitoring and Measurement

Effective monitoring and measuring provides essential mechanisms for evaluating environmental performance, analyzing root causes of problems, assessing compliance with legal requirements, identifying areas requiring corrective action, and improving performance and increasing efficiency. Pollution prevention and other strategic opportunities are identified more readily when current and reliable data is available. All key characteristics of operations that can have a significant environmental impact must have a procedure(s) established, implemented and maintained, when appropriate, for monitoring and measuring. The procedure(s) must include documenting information to monitor performance, applicable operational controls and conformity with the objectives and targets.

Fermilab's environmental monitoring program consists of compliance driven monitoring and environmental surveillance. The goal is to assist Laboratory management in decision-making by providing data relevant to impacts that Fermilab operations have on the surrounding environment. Compliance monitoring is conducted at specific locations in accordance with permit requirements, while environmental surveillance is done on the potential pathways to receptors and is conducted at various locations. Data is collected for reporting purposes or whenever it is necessary or useful in conducting the business of the Laboratory.



11. Evaluation of Compliance

Compliance elements of Fermilab's EMS are listed in the table in Appendix A. The Fermilab Self-Assessment Program Plan sets forth the Laboratory expectations for line self-assessment and independent oversight of the ES&H program. FESHM chapter 1010.1, ES&H Self-Assessment Program, also covers ES&H appraisals and audits, both internal and external, which are conducted to assess and document compliance with ES&H policies, permits and regulatory requirements. The chapter covers appraisals and audits at four different levels: DOE Headquarters Reviews; DOE/FSO Group Reviews; Inspections by External Regulatory Agencies; and the Fermilab Self-Assessment Program.

12. Nonconformity, Corrective Action and Preventative Action

The Laboratory uses the following mechanisms to address system deficiencies.

Lessons Learned

Environmental Lessons Learned exercises shall be conducted by the EP Subcommittee to identify activities that have resulted in an incident that either causes or has the potential to cause an environmental non-compliance or contamination of environmental media, as outlined in FESHM Chapter 3020, Incident Investigation and Analysis. A subset of the subcommittee, made up of subcommittee members and employees with specific subject matter expertise that can aide in the investigation, shall perform these exercises. The depth of an investigation is dependent on its potential to cause damage. It is important to emphasize that Lessons Learned investigations are not fault finding exercises but rather fact finding.

Significant and Reportable Occurrences

Laboratory management and DOE must be appropriately notified of events which adversely affect the environment. The process for reporting appropriate events is described in FESHM Chapter 3010, Significant and Reportable Occurrences. This process also outlines how to categorize events as well as investigate occurrence and generate and submit reports.

Preventative Action

Preventative action is incorporated into the corrective action program through the processes outlined in the following referenced FESHM chapters (1040, 3010, 3020 and 3030). These mechanisms provide information that can be used in evaluation of occurrences and projection of potential preventative actions for future projects. FESHM Chapter 3030, Noncompliance Tracking System, specifically points out in the Responsibilities section that the Price Anderson Amendments Act (PAAA) Coordinator conduct quarterly review of reported incidents, inspection reports, and program reviews to identify programmatic trends.

13. Control of Records

The value of records management lies in the ability to demonstrate that the EMS is being implemented as designed. While records have value internally they also provide evidence of EMS implementation to external parties. The EMS would be difficult to operate in a consistent



manner without accurate records. For records management, the process begins with a determination of what records need to be kept, how they will be kept and for how long. Records are a form of documentation and are dealt within the same mechanism as document control (refer to number 7 above).

14. Internal Audit

The Fermilab Self-Assessment Program Plan sets forth the Laboratory expectations for line self-assessment and independent oversight of the ES&H program. FESHM chapter 1010.1, ES&H Self-Assessment Program, also covers ES&H appraisals and audits, both internal and external, which are conducted to assess and document compliance with ES&H policies. The chapter covers appraisals and audits at four different levels, DOE Headquarters Reviews, DOE/FSO Group Reviews, Inspections by External Regulatory Agencies and the Fermilab Self-Assessment Program.

iTrack is a database that is used at Fermilab to support the Issues Management System. In particular, iTrack plays a key role in monitoring the status of Fermilab's self-assessment program. Quality Assurance Manual chapter 12030 contains the Lab's policy regarding its use as well as associated implementation procedures.

15. Management Review

Management must periodically step back and evaluate the performance of the EMS. These reviews offer an opportunity to ensure its continuing suitability, adequacy and to keep the EMS efficient and cost effective. Management review occurs via multiple mechanisms. These include regular status reports to the Fermilab ESH Committee (FESHCom), the Annual Environmental Report to the Director, and the Site Sustainability Plan.

FESHCom has the responsibility of reviewing the ESH policies and programs of the Laboratory, including the ESM. This is accomplished primarily by the actions of its subcommittees. FESHCom is chaired by the Director and is composed of members that include ex-officio members, the Senior Laboratory Safety Officer, the chairperson of each subcommittee, and a representative of each D/S/C.

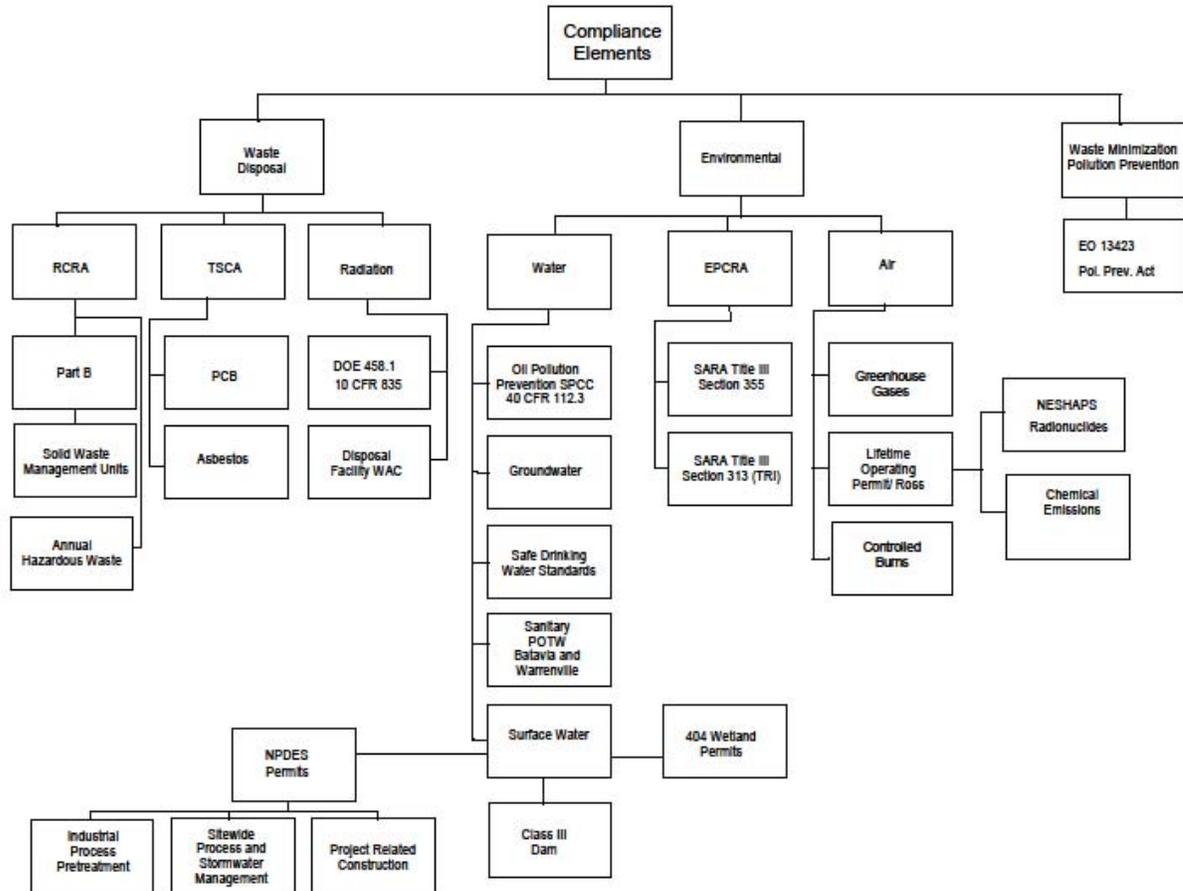
Higher level reviews of ES&H activities are also performed by Fermilab's governing board. FRA has established an ES&H Subcommittee of the Board of Directors. This committee meets each quarter with representatives of the Directorate and the Senior Laboratory Safety Officer and his/her staff to review current ES&H performance. The results of the subcommittee's deliberations are reported to the full assembly of the Board.



Appendix A

Fermilab Environmental Management System Compliance Elements

Fermilab Environmental Management System





Appendix B

Mechanism for Determining Goals/Objectives, and Targets

Goals/objectives and targets may be set within significant aspect categories through the framework of an Environmental Management Initiative (EMI) in the iTrack database. Any number initiatives may be developed, with corresponding goals/objectives and targets; within a particular aspect category. Goals/objectives and targets may be set to maintain an attained level of achievement for a given aspect or other EMS element. Targets need not be specified where it is sufficient to specify the objective alone. Where appropriate, the target may be set for each objective to further define the incremental tasks necessary to achieve objectives. Targets also include dates when objectives will be achieved.

Goals/objectives and targets must be consistent with overall Laboratory objectives. Furthermore, in setting goals/objectives and targets, the following will be considered:

- views of interested parties,
- prevention of pollution,
- compliance with applicable regulations,
- achievement of continual improvement,
- technological options, and
- financial, operational, and organizational requirements.

Other considerations in setting objectives include quantification and time frames. Whenever possible, objectives should be set in quantitative terms with specific time frames for accomplishment to facilitate measurement, performance monitoring, and trends analysis. However, quantification is not a requirement of objectives and measurability is possible without quantification. Fermilab may set objectives for elements within significant environmental aspects irrespective of their ability to be quantified. In some cases, quantification may not be possible because an environmental aspect element has not been previously measured, and therefore there is no baseline against which to measure performance. In these cases, the first cycle of measurements will act as a baseline against which to quantify future performance.

Targets describe in detail how objectives will be achieved, including the operations that will contribute to an objective and the dates by which they should be achieved. Targets can provide performance metrics in cases where objectives cannot be quantified. For example, where an objective is to develop a plan to replace hazardous chemicals with less hazardous substitutes, the first target may be to complete a draft plan within 6 months of setting the target; the second target may be to finalize the substitution plan within 1 year. The achievement of these targets then becomes the metric by which



performance is measured. Again, measurability is often possible even when quantification is not.

Fermilab will establish performance indicators (measures) when setting goals/objectives and targets and will include these within the environmental management initiative documentation. These may include performance indicators for environmental performance, compliance, pollution prevention, and for other EMS elements for which we have established goals/objectives and targets. Performance indicators will be tracked as part of the environmental management initiatives to ensure that goals/objectives and targets are on track for attainment within the specified timeframes.

Progress toward achieving the goals/objectives and targets should be sufficient over time so that the end goal can be met in accordance with the timeline specified in the EMI.

Records

The EP Subcommittee will create and maintain records that pertain to the setting of EMS goals/objectives and targets. This will be done through the use of EMIs recorded in the iTrack database. Information required for the form includes:

1. Date that the EP Subcommittee accepts the form..
2. The Division/Section/Center that the responsible individual resides.
3. The environmental objective. This should be a short narrative statement of what the problem and the fix are, and should begin by stating the Significant Aspect and Element. Objectives should be measurable with quantitative goals.
4. The target date set for completion of the objective.
5. The action plan.
 - a. How will the objective be set? This information includes what the plan is for getting from where we are to where we want to be. It should include information designating responsible individuals and target dates for each step of the plan.
 - b. What operation controls will support achieving this objective? This includes information on any procedures that need to be developed or changed, additional training requirements and any coordination links that need to be established.
 - c. How will this objective be tracked? This includes the need for sampling and analysis or tracking of reports or noncompliance.
 - d. What resources that will be required to achieve this objective? This includes the necessary financial and/or personnel requirements.

All new EMIs will be reviewed by the Environmental Protection Subcommittee (EPS). Status on progress will also be tracked by the EPS.



Appendix C

Letter of Declaration from Facility Manager to Office of Science

DEC 02 2005

Raymond L. Orbach, Director
Office of Science
SC-1 FORS

SUBJECT: ENVIRONMENTAL MANAGEMENT SYSTEMS DECLARATION FOR
FERMI NATIONAL ACCELERATOR LABORATORY

Pursuant to Department of Energy (DOE) Order 450.1, Section 5.d. (1), I am reporting to you that I have determined that the Fermi National Accelerator Laboratory (Fermilab) fully conforms to the Environmental Management System (EMS) requirements of DOE Order 450.1. I base my determination upon the results of a second-party assessment, which I requested as a component of my implementation of DOE Policy 450.5, Line Environment, Safety and Health Oversight.

The second-party assessment of the Fermilab EMS used the self-declaration procedure described in Attachment 2 of draft DOE Guidance 450.1-1A. The EMS Assessment Plan contains the specific lines of inquiry used to evaluate the adequacy of the EMS and its implementation. The Fermilab EMS Assessment Final Report includes the EMS Assessment Plan as an attachment. Using the second-party assessment, I confirmed that Fermilab has updated its approved description of its Integrated Safety Management System (ISMS) to include the EMS requirements of DOE Order 450.1.

I also confirmed that Fermilab has the appropriate ES&H performance objectives, performance measures and commitments incorporated into its ISMS/EMS and includes the appropriate environmental elements based on the environmental risks and impacts of the activities of the site and established Departmental pollution prevention/energy efficiency goals.

In addition, the Fermi Site Office (FSO) uses the following mechanisms to ensure that the requirements of DOE Order 450.1 are being (and will continue to be) implemented: FSO participation in the periodic review and comment on future revisions of Fermilab Environment, Safety and Health (ES&H) Manual Chapter 8010, "Environmental Management System," dated May 2005; FSO participation in the annual review, comment and approval of revisions to the "Fermilab Integrated ES&H Management Plan", which incorporates Fermilab's EMS; FSO participation in an annual EMS management review through the Fermilab Tripartite self-assessment program; and FSO participation in monthly Environmental Protection Subcommittee meetings and other environmental operational awareness activities.



Raymond L. Orbach

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In summary, I have reviewed Fermilab's

- environmental policy,
- approved ISM system description, including EMS,
- current list of significant aspects, and
- current measurable goals, objectives and targets,

and I have determined that Fermilab has implemented an EMS that meets the requirements of DOE Order 450.1.

The Fermi Site Office maintains documentation supporting this determination, including the Fermilab EMS Assessment Final Report and EMS Assessment Plan. The documentation is available for review by the Office of Science and the Office of Environment, Safety and Health.

Original Signed by
Dr. Joanna M. Livengood
Site Manager

Joanna M. Livengood
Site Manager

cc: John Spitaleri Shaw, EH-1, FORS

bc: D. Erbschloe, SC-3, FORS
A. Edelman, SC-31.1, GTN
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