

Summary of Changes

to

421.1

Safety Analysis and Review System (SARS) at FETC

Revised Version Issued as 421.1A of 8/18/03

FETC Order 421.1, Safety Analysis and Review System (SARS) at FETC, of 10/1/99, has undergone revisions. This Order has been rewritten to include the requirements from the three SARS Operating Plans which are being cancelled. The Order now contains all of the policies, requirements, and general responsibilities needed to implement the three SARS processes. Other changes include making minor updates such as changing organizational names and FETC to NETL. Please replace FETC Order 421.1 with NETL Order 421.1A.

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U.S. Department of Energy

National Energy Technology Laboratory

ORDER

421.1A

DATE: 8/18/03

SUBJECT: SAFETY ANALYSIS AND REVIEW SYSTEM

1. OBJECTIVE. To establish a Safety Analysis and Review System (SARS) for NETL which provides for a structured system to ensure that ES&H risks associated with on-site R&D activities, support operations, and facilities, as well as off-site and on-site contracted activities, are analyzed, understood, and controlled to a degree acceptable by line management.
2. CANCELLATION.
 - a. FETC Order 421.1, Safety Analysis and Review System (SARS) at FETC, of 10/1/1999.
 - b. NETL Operating Plan 421.1-1, R&D Safety Analysis and Review System (SARS), of 4/10/2003.
 - c. NETL Operating Plan 421.1-2, Support Operations Safety Analysis and Review System (SARS), of 10/1/1999.
 - d. NETL Operating Plan 421.1-3, Facility Safety Analysis and Review System (SARS), of 10/1/1999.
3. APPLICABILITY. This Order applies to all on-site R&D activities, support operations, and facility construction and use.
4. REQUIREMENTS.
 - a. Safety analyses and reviews shall occur prior to activities, operations, or facilities usage to determine if there will be any adverse impacts to workers, the public, the environment, facilities, or equipment. These systems shall be based on the guiding principles and core work functions of integrated safety management, as outlined in DOE Order 450.4, Safety Management System Policy, and DOE Guide 450.4, Integrated Safety System Guide for Use with Safety Management System Policy and the NETL Order 450.1, Environmental Management System.

INITIATED BY: Office of the Director
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- b. Risks associated with the construction, operation, or modification of on-site R&D activities and on-site facilities shall be analyzed, understood, and reviewed. These risks shall be mitigated, controlled, and/or eliminated to a degree acceptable by line management.
- (1) The SARS package will be the primary document used in the analysis and review of the risks associated with on-site R&D projects and on-site facilities.
 - (2) A signed construction, operation, or modification permit shall be issued for those on-site R&D activities and on-site facilities that have been approved by line management in terms of risk acceptability. The permit grants permission to begin the activity described in the documentation. To be valid, these permits must be signed by the OST AD for on-site R&D activities and by the OBL AD for on-site facilities.
 - (3) A review by individuals external to the project shall be required for the safety analysis. The intensity of the review shall be directly related to the risks associated with the project.
 - (4) Project and activities that fall under 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals, shall adhere to the requirements in that CFR section, and to all other applicable NETL directives.
- c. Risks associated with the execution of support operations shall be analyzed, understood, and reviewed. These risks shall be mitigated, controlled, and/or eliminated to a degree acceptable by line management.
- (1) The SARS package shall be the primary document used to analyze and review the risks associated with support operations.
 - (2) Line management shall review and approve the SARS package when resulting risks are acceptable.
- d. Risks associated with off-site contractors working on site at NETL shall be managed through NETL's contracting processes. ES&H conditions impacting off-site contractors, ES&H contractor performance expectations, and ES&H deliverables shall be identified in NETL's Statement of Work. A contractor ES&H Plan, approved by the contracting officer's representative, shall be the primary vehicle used to document the contractor's processes and procedures for implementing ES&H requirements in the Statement of Work.
- e. Risks associated with NETL off-site activities shall be managed through NETL's contracting and financial agreements processes. Specifically, the contracting officer representative, in executing the project management responsibilities, shall ensure that the appropriate language is included in the contract or financial agreement.

- f. Procedures shall be developed to implement this order and its requirements.

5. RESPONSIBILITIES.

- a. Associate Director, Office of Science and Technology, shall:

- (1) Ensure that procedures are developed to implement an R&D SARS process.
- (2) Approve all on-site R&D activities prior to the start of construction or operation of project and for modifications to the project.

- b. Associate Director, Office of Business and Logistics, shall:

- (1) Ensure that procedures are developed to implement a Facility SARS process.
- (2) Ensure that procedures are developed to implement a Support Operations SARS Process.
- (3) Ensure that procedures are developed to address the risks of off-site contractors working on site at NETL.
- (4) Ensure that procedures are developed to manage the risks associated with work performed by off-site contracted work.
- (5) Appoint a Facility SARS Committee.
- (6) Approve all on-site facility construction and modifications and support operations prior to their start.

6. POLICY. It is NETL policy that:

- a. Line management is responsible and accountable for ES&H performance at NETL, ensuring that risks are analyzed, understood, and controlled to acceptable levels primarily through the use of SARS processes.
- b. Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of requirements and standards shall be established through the SARS processes, which, if properly implemented, will provide adequate assurance that workers, the public, and the environment are protected from adverse consequences.
- c. Controls to prevent and mitigate hazards shall be tailored to the work being performed and the associated hazards. The established order of protective controls shall be (1) engineering, (2) administrative, (3) safety instrumented system, and (4) personal protective equipment controls. The NETL SARS processes will be the primary mechanism by which hazards are identified and controls are tailored to the work being performed.

- d. NETL's SARS and work control systems shall be the primary mechanisms by which operations are authorized for execution (e.g., hazards are reviewed, appropriate controls enacted and formal approval given to undertake operation). The implementation of SARS processes shall be the primary mechanism through which and from which core functions under integrated safety management will be executed, including hazards analysis, development and implementation of hazard controls, work performance within controls, and feedback and continuous improvement opportunities.

7. REFERENCES.

- a. DOE Policy 411.1, [Safety Management Functions, Responsibilities, and Authorities Policy](#).
- b. DOE Policy 450.4, [Safety Management System Policy](#).
- c. DOE Guide 450.4-1, [Integrated Safety Management System Guide](#).
- d. NETL Order 450.1, [Environmental Management System \(EMS\)](#).

8. DEFINITIONS. This section defines significant or frequently used terms or acronyms used in the Order.

- a. Facility -- A facility is any real property asset including building, trailer, utility, service, structure, road, walk, or area.
- b. Off-Site Contractor -- Any contractor or subcontractor whose work requires effort at an NETL site, but who does not report to the NETL site as a regularly assigned work location.
- c. R&D Project -- One body of R&D work that is covered in one SARS package. This body of work shall be under the oversight of one person who is responsible for the contents of the safety analysis. This body of work may be a single research activity or multiple, related research activities. Additionally, this body of work may focus on a laboratory, which supports other projects, and does not function to serve its own research goals. The definition of the work project may be further clarified by the Division Director.
- d. SARS Package -- Documentation assembled to demonstrate consideration of appropriate ES&H and engineering design issues during the planning process. The package includes safety analyses, memorandums, letters, inspection reports, EMS-related documentation, etc. "Safety" in this context is meant to include environment, safety, and health considerations.
- e. Support Operation -- A support operation is any non-R&D activity performed on site by site personnel. Activities include construction, operations, maintenance, and renovation.

- f. Use Permit -- Written approval to use or occupy a facility.

Deputy Director for Operations

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