

**Department of Energy**

Washington, DC 20585

April 2, 2001

The Honorable John T. Conway  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, NW  
Suite 700  
Washington, D.C. 20004

Dear Mr. Chairman:

Consistent with the Department's implementation plan for the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2000-2, I am forwarding information concerning Deliverable 15, due in March 2001 under the implementation plan.

Commitment 15 calls for the Department to institute the System Engineer concept in directives.

Enclosed is a memorandum from the Acting Deputy Assistant Secretary, Office of Safety and Health, forwarding to the Field Management Council a Directives Management Document for changes to DOE Order 420.1, *Facility Safety*. This Directives Management Document is the first step in changing the Order to implement the System Engineer concept in directives. The Department has completed Commitment 15 and proposes closure of this commitment.

Sincerely,

A handwritten signature in black ink that reads "Steven V. Cary".

Steven V. Cary  
Acting Assistant Secretary  
Office of Environment, Safety and Health

Enclosure

cc:

M. Whitaker, S-3.1



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01 APR -5 AM 9:57  
DNF SAFETY BOARD



**Department of Energy**  
Germantown, MD 20874-1290

**DATE:** March 30, 2001

**MEMORANDUM FOR:** Dean Smith, MA-4  
Field Management Council Secretariat  
Office Of Management and Operations Support  
Office of Management and Administration

**FROM:** C. Rick Jones *C. Rick Jones*  
Acting Deputy Assistant Secretary  
Office of Safety and Health

**SUBJECT:** Request for Review of Directives Management Document  
for DOE Order 420.1, FACILITY SAFETY

In accordance with the J. M. Wilcynski memorandum of July 1, 1999, the Office of Environment, Safety and Health (EH) is submitting a Department of Energy (DOE) Directives Management Document (DMD) for Field Management Council review for the following Order: DOE O 420.1, "FACILITY SAFETY."

The Order revision provides new requirements for Category 1, 2, and 3 nuclear facilities developed to satisfy commitments in the Department's Implementation Plan for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2000-2. The Order revision will also institutionalize, via the Directives System, those interim requirements already established by the Secretary of Energy to implement the system engineers concept under the February 20, 2001, Spencer Abraham, Memorandum for Administrator, National Nuclear Security Administration, et al. Its provisions are essential to help DOE ensure the safety of nuclear facilities and activities across DOE.

This revision will add a new Section 4.5, "System Engineers," to supplement the currently approved DOE Order 420.1. It will be coordinated for limited review and comment (i.e., review of only the newly added sections) through the DOE Directives System, pending the results of the Field Management Council DMD review. EH plans to issue the revised document by July 11, 2001, (see the DMD, significant dates). An electronic file of the DMD is attached.

At this time, DOE does not intend to revise the remainder of the well-established requirements for facility safety. Rather, EH will conduct a limited review of only the newly added materials in the proposed Order revision to focus on implementing the DOE commitments made in response to DNFSB 2000-2. It is not intended to reassess the unrevised remainder of the Order, and that portion will not be subjected to coordination at this time.



The Order, as DOE-O-420.1, was approved for use on Oct 13, 1995, and has been revised through Change 3, dated November 22, 2000. It has been in continuous use since its publication.

If you have any questions, please contact Richard Englehart of the Office of Nuclear and Facility Safety Policy (EH-53) at (301) 903-3718.

Attachment

**DIRECTIVE MANAGEMENT DOCUMENT FOR REVISION TO  
DOE O 420.1, FACILITY SAFETY  
DMD Rev. # 3/29/01 4:00PM**

**1.0 PURPOSE OF PROPOSED DIRECTIVE:**

**DOE Response to DNFSB Recommendation 2000-2:** As part of the Implementation Plan for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2000-2, the Department committed to developing Department of Energy (DOE) Directive changes to institutionalize the System Engineer concept and to meet the commitments made by the Secretary of Energy (S-1) in the February 20, 2001, Memorandum for Administrator, National Nuclear Security Administration; Acting Assistant Secretary for Environmental Management; Acting Director Office of Science; from Spencer Abraham, regarding, "Establishment of System Engineer Programs under Implementation Plan for Defense Nuclear Facilities Safety Board (Board) Recommendation 2000-2, *Configuration Management, Vital Safety Systems.*"

**Replace interim Direction:** This Order is being revised to add systems engineering concepts into DOE facility safety. This revision will replace the interim direction, *Conceptual Design for a System Engineer Program*, that has been already issued by the Secretary (see February 20, 2001, Spencer Abraham, Memorandum for Administrator, National Nuclear Security Administration, et al.) for implementation at defense nuclear facilities. The revision of this order will be limited only to incorporating a new Section 4.5 on "System Engineers" and updating pertinent NNSA references. The balance of the Order (i.e., the existing portions) will not be opened for review and revision.

**Incorporate new Directives System requirements:** The following key areas will be addressed in the addition/revision:

- Identifying systems whose safety significance warrants the use of a system engineer.
- Establishing a program to implement key system engineer functions.
- Establishing a need for contractors to define minimum qualification/requalification requirements and establishing a process for identifying successor system engineers.
- Safety system assessments
- Configuration Management
- Assessment of System Status and Performance
- Technical Support for Operations and Maintenance Activity

DOE Implementation Plan Commitments in response to DNFSB Recommendation 2000-2, related to system engineering state:

- #15. The Department will establish requirements for a system engineer concept to manage the configuration of systems designated as important to safety.
- o Draft DOE Order revision submitted into the Directives review process - March 2001: Assistant Secretary, EH; EH lead Richard Englehart.
  - o Order change to 420.1
  - o Input to FMC (first step in the order review process) likely by 3/30/01.

## **2.0 APPLICABILITY:**

The newly added requirements in this Order will apply to Category 1, 2, and 3 nuclear facilities, in particular to safety-class systems, safety-significant systems, and systems that perform an important defense in depth safety function (and thus applies to NNSA).

## **3.0 OPERATIONAL IMPACT:**

The System Engineer concept is a mechanism for applying technical expertise to maintain the design basis, control configuration, and trend performance of systems essential for safe operations of a facility. The revisions to the Order are intended to improve design, operations, maintenance, and safety review processes for nuclear and facility safety.

## **4.0 COST IMPACT:**

It is anticipated that affected facilities will be able to initially assign system engineers from within existing staff. Budget or other impacts due to reassignments or new hiring to meet new requirements in this Order shall be expeditiously communicated to responsible Contractor and DOE management. Sites or facilities that have been unable to complete initial assignments, per the Secretary's interim guidance, by March 2001 must provide appropriate justification and any compensatory actions to the responsible Program Secretarial Officer.

## **5.0 RELATED DIRECTIVES:**

DOE O 430.1A, *Life Cycle Asset Management*  
DOE P 450.4, *Safety Management System Policy*

## **6.0 DIRECTIVES MANAGEMENT ISSUES/PROCESS SIGNIFICANT DATES:**

This revision is part of the overall DOE process of satisfying commitments in the Implementation Plan for DNFSB Recommendation 2000-2, and formally incorporating interim direction into the DOE Directives System.

**SIGNIFICANT DATES:**

DMD sent out for comment by:	March 30, 2001
Comments due by:	April 6, 2001
DMD issues resolve:	April 20, 2001
Draft Order sent out for comment by:	April 20, 2001
Comments due by:	May 20, 2001
Order issue resolve:	June 20, 2001
Final draft Order for approval	July 4, 2001
Publication and distribution of Order:	July 11, 2001

**ISSUES:**

The Department has not adopted the nuclear business' long-standing practice of designating system engineers for systems and processes that are vital to safety. By identifying personnel outside the operational forum, designating them as system engineers, and assigning them responsibility for configuration management, the Department could establish a mechanism that would go a long way toward ensuring reliable safety system performance.

Interim guidance has already been issued by the Secretary of Energy to require system engineers at designated DOE facilities. This Order revision will implement those requirements for system engineers through the Directives System.

Safety Issue: Integrated Safety Management (ISM) System processes help to ensure systems are able to perform their design safety functions. Effective implementation of ISM relies upon the ability to apply engineering expertise to maintain safety system configuration and assess system condition.

**7.0 REFERENCES:**

- (1) DOE P 450.4, *Safety Management System Policy*
- (2) February 20, 2001, Memorandum for Administrator, National Nuclear Security Administration; Acting Assistant Secretary for Environmental Management; Acting Director Office of Science; from Spencer Abraham, regarding, "Establishment of System Engineer Programs under Implementation Plan for Defense Nuclear Facilities Safety Board (Board) Recommendation 2000-2, *Configuration Management, Vital Safety Systems*"
- (3) DOE STD 1073-93, *Guide for Operational Configuration Management Program*
- (4) DOE O 430.1A, *Life Cycle Asset Management*
- (5) DOE P 450.5, *Line Environment, Safety and Health Oversight*
- (6) DOE STD 3024-98, *Content of System Design Descriptions*,

**8.0 CONTACT:** Richard Englehart, EH-53 (301) 903-3718