

ORO CONTROL FORM - FINAL DIRECTIVE

PART A (To be completed by the Division of Primary Interest (DPI))

1. **NUMBER AND TITLE OF DIRECTIVE:** **ORO O 420, Chapter I, Change 3, FACILITY SAFETY**

2. **PURPOSE OF TRANSMITTAL:** New Directive Revised Directive

3. **THIS DOCUMENT MAY AFFECT THE WORK PERFORMED BY THE FOLLOWING CONTRACTORS:** (Check appropriate boxes)

No (all contractors)

Yes If yes, whom? Bechtel Jacobs Co. ORAU UT-Battelle ISOTEK (Bldg. 3019, ORNL)

Other contractors (list by type)

Many ORO contractors have approved Standards/Requirements Identification Documents (S/RIDs) or Work Smart Standards (WSS) Sets that may affect applicability of contractor requirements from this directive. Applicability of contractor requirements must take into account the approved standards set for each particular contract.

4. **SIGNIFICANT PROVISIONS:** Are there any significant changes or impacts? No Yes
If yes, describe: This ORO Chapter is part of the ORO sunset review process. Changes to this Chapter include (1) a major rewrite of the Chapter; and (2) update to Paragraph 6, References.

5. **CONTACT POINT:** Jorge Ferrer Safety and Health Division, SE-33 576-6638
Name Organization Telephone

PART B (To be completed by the Directives Management Group (DMG)):

6. **FILING INSTRUCTIONS:**

<u>Remove</u>	<u>Dated</u>	<u>Insert</u>	<u>Dated</u>
ORO Control Form	09/13/1999	ORO Control Form	10/21/2004
ORO O 420, Ch. I, Chg. 2	09/13/1999	ORO O 420, Ch. I, Chg. 3	10/21/2004

ORO Directives are available on the ORO Directives Management Home Page at http://www.ornl.gov/doe/doe_oro_dmg/oro_dir.htm. The ORO Directives will no longer be mailed in printed copy unless you do not have Internet capabilities.

7. **APPROVED FOR DISTRIBUTION IN ACCORDANCE WITH THE OFFICIAL DIRECTIVES DISTRIBUTION LIST:**

Original Signed By
Wayne H. Albaugh 10/21/2004
Signature: DMG Team Leader, AD-440 Date

INSTRUCTIONS TO ADDRESSEES: THIS FORM IS TO BE FILED WITH THE DIRECTIVE AND RETAINED

Rev. 11/06/2003

NNSA/YSO CONTROL FORM – FINAL DIRECTIVE

PART A (To be completed by the ORO DIRECTIVES MANAGEMENT GROUP, AD-440):

DIRECTIVE NUMBER, TITLE, AND DATE:

ORO O 420, CHAPTER I, CHANGE 3, FACILITY SAFETY, dated 10/21/2004

PURPOSE OF TRANSMITTAL: New Directive Revised Directive

DOES THIS DIRECTIVE **CANCEL/REPLACE OR EXTEND** ANY OTHER DIRECTIVES? Yes No
If "Yes," list what action (cancel/replace or extend) and list the Directive(s), including the number(s), title(s), and date(s):

This Directive cancels and replaces ORO O 420, Chapter I, Change 2, FACILITY SAFETY, dated 09/13/1999.

The attached Directive is forwarded for review and action. Complete Part B and forward this form to ORO DMG, AD-440, by **11/04/2004**.

PART B (To be completed by the NNSA Y-12 SITE OFFICE, Y12-01):

CONTRACTOR APPLICABILITY:

Does this Directive affect the work performed by BWXT Y-12, L.L.C.? Yes No

Does this Directive affect the work performed by BWXT Y-12, L.L.C., subcontractors? Yes No

If "Yes," list the subcontractors:

Many contractors have approved Standards/Requirements Identification Documents (S/RID) or Work Smart Standards (WSS) Sets that may affect applicability of contractor requirements from this Directive. Applicability of contractor requirements must take into account the approved standards set for each particular contract.

SIGNIFICANT PROVISIONS: Are there any significant changes or impacts? Yes No

List summary of Directive changes and, **if "Yes"** above, describe the significant changes or impacts:

IMPLEMENTATION: Does the Directive contain special implementation requirements and/or dates? Yes No

If "Yes," describe:

FOR DOE DIRECTIVE – SUPPLEMENTAL DIRECTIVE REQUIRED?

Is a new or revised supplemental Directive required? Yes No

If "Yes," target date for submission of YSO Directive is _____.

IDENTIFY CONTACT POINT: Doug Dearolph 241-8398
Name Telephone

APPROVED BY COR FOR DIRECTIVES: Diane McCarten 11/05/2004 576-9330
Signature Date Telephone

PART C (To be completed by the ORO DIRECTIVES MANAGEMENT GROUP, AD-440):

DOE Directives are available on the DOE Directives Portal at <http://www.directives.doe.gov/>. ORO Directives are available on the ORO Directives Management Group Home Page at http://www.ornl.gov/doe/doe_oro_dmg/oro_dir.htm. Directives will no longer be mailed in printed copy unless you do not have Internet capabilities.

APPROVED FOR DISTRIBUTION IN ACCORDANCE WITH OFFICIAL DIRECTIVE DISTRIBUTION LIST:

Wayne H. Albaugh, AD-440 11/09/2004
Name Date

INSTRUCTIONS TO ADDRESSEES: THIS FORM IS TO BE FILED WITH THE DIRECTIVE AND RETAINED.

(Revised 11/06/2003)

U.S. Department of Energy

Oak Ridge Operations

ORO O 420
Chapter I
Change 3

DATE: 10/21/2004

SUBJECT: FACILITY SAFETY

1. PURPOSE. This Chapter correlates to DOE O 420.1A, FACILITY SAFETY, dated May 20, 2002, by assigning responsibility and accountability and providing administrative guidance to Oak Ridge Operations (ORO). This Chapter establishes the policy and process within ORO for facility safety requirements related to: nuclear safety design, fire protection, natural phenomena hazards mitigation and a System Engineer Program. This Chapter is not intended to be a stand-alone document, but is to be used in conjunction with DOE O 420.1A. ORO O 420, Chapter XII, Change 1, NUCLEAR CRITICALITY SAFETY, dated April 1, 2004, was developed to implement the criticality safety requirements of the DOE Directive. Nothing in this issuance changes any requirements contained in any Department of Energy (DOE) Directive.
2. CANCELLATION. This Chapter cancels and replaces ORO O 420, Chapter I, Change 2, FACILITY SAFETY, dated September 13, 1999, and the ORO Fire Prevention and Protection Implementation Guides distributed by memorandum dated June 4, 1997.
3. APPLICABILITY. The provisions of this Chapter apply to ORO Management and Principal Staff. Although the Contractor Requirements Document (CRD) attached to DOE O 420.1A, is applicable to contractors, no additional requirements are imposed in this Chapter.
4. RESPONSIBILITIES. Many ORO contractors have developed Standards/Requirements Identification Documents or Work Smart Standards Sets that may not include requirements referenced or included in DOE O 420.1A, its attached CRD, or this Chapter. Interpretation and performance of Federal responsibilities outlined below must take into account the approved standards set for each particular contract and must not be deemed to add any requirements to the approved standards set.
 - a. Manager, ORO.
 - (1) Ensures that new and significant modifications of existing Hazard Category 1, 2, and 3 DOE nonreactor nuclear facilities and explosive facilities under his/her jurisdiction and their safety structures, systems, and components (SSCs) are designed and constructed so as to assure adequate protection for the public, workers, and the environment from nuclear and explosive hazards.
 - (2) Ensures support is provided for a level of fire protection and fire suppression capability in DOE nuclear and non-nuclear facilities under his/her jurisdiction sufficient to minimize losses from fire and related hazards consistent with industry and DOE fire safety criteria.

- (3) Ensures that DOE nuclear and non-nuclear facilities under her/her jurisdiction are designed, constructed, maintained, modified, and operated so that the general public, workers, and the environment are protected from the impact of Natural Phenomena Hazards.
 - (4) Ensures that System Engineer Programs are established, implemented, and maintained and Cognizant System Engineers are designated for Hazard Category 1, 2, and 3 nuclear facilities under his/her jurisdiction so that safety class and safety significant SSCs, as defined in the safety bases for these facilities, and other active SSCs that perform an important defense-in-depth function are maintained operable for the protection of the public, workers, or the environment.
 - (5) Ensures that qualified safety system oversight personnel are assigned to DNFSB-related Hazard Category 1, 2, and 3 facilities for oversight of the active safety class, safety significant, and important to defense-in-depth SSCs.
 - (6) Assesses ORO line organizations' implementation of their responsibilities for nuclear safety design, fire protection, natural phenomena hazards mitigation, and safety system oversight programs in accordance with ORO O 220, Chapter XI, OAK RIDGE OPERATIONS ASSESSMENT PROGRAM, dated June 1, 2004.
- b. Assistant Manager for Environment, Safety, and Health.
- (1) Establishes and maintains this Chapter that, along with DOE O 420.1A and referenced standards and guidelines, form the infrastructure for ORO's nuclear safety design, fire protection, natural phenomena hazards mitigation, and safety system oversight programs.
 - (2) Disseminates requirements, incidents, lessons learned, and applicable information generated by DOE Headquarters (HQ), other agencies, organizations, and facilities among ORO line organizations.
 - (3) Provides core support in assessing DOE contractors' nuclear safety design, fire protection, natural phenomena mitigation, and system engineering programs and in overseeing their implementation, as requested by ORO line management.
 - (4) Provides core support in reviewing facility and SSC designs, constructions, and operations, safety analyses, design bases, and other analyses, assessments, plans, specifications, procedures, etc., for conformance with DOE O 420.1A, applicable building codes, national consensus codes and standards, Executive Orders, contract requirements, safety basis requirements, and other system requirements, as requested by ORO line management.
 - (5) Provides core support in evaluating requests for equivalencies and exemptions from DOE O 420.1A, applicable building codes, national consensus codes and standards, and Executive Orders, as requested by ORO line management.
 - (6) Provides core support in determining the appropriate set of contractual nuclear safety design, fire protection, natural phenomena mitigation, and system engineering Directives,

standards, and other requirements to be included in contracts, as requested by ORO line management.

- (7) Provides ORO Authority Having Jurisdiction (AHJ) support to the ORO line organizations for fire protection matters, as requested by ORO line management.

c. Assistant Manager for Environmental Management; Assistant Manager for Science; Assistant Manager for Nuclear Fuel Supply; and Assistant Manager for Administration.

- (1) Ensures that DOE contractors under his/her jurisdiction design, and construct, new Hazard Category 1, 2, and 3 non-reactor nuclear facilities and explosive facilities and proposed significant modification to them in accordance with the design requirements outlined in DOE O 420.1A, subparagraph 4.1, and Attachment 2 and applicable documents referenced in Paragraph 6 of this Chapter.
- (2) Ensures that DOE contractors under his/her jurisdiction establish, implement, and maintain effective and efficient fire protection programs and their nuclear and non-nuclear facilities meet applicable design requirements outlined in DOE O 420.1A, subparagraph 4.2 and Attachment 2, applicable model building codes, National Fire Protection Association Codes and Standards, and other applicable industry and DOE fire safety criteria referenced in Paragraph 6 of this Chapter.
- (3) Ensure that DOE contractors under his/her jurisdiction design, construct, maintain, modify, and operate their nuclear and non-nuclear facilities in accordance with the natural phenomena mitigation design requirements specified in DOE O 420.1A, subparagraph 4.4, and Attachment 2, and Executive Orders 12699 and 12941, and other applicable documents referenced in Paragraph 6 of this Chapter.
- (4) Designate a qualified Safety System Oversight Person(s) for each active safety class, safety significant, and important to defense-in-depth SSC, as defined in the safety bases for the DNFSB-related Hazard Category 1, 2, and 3 nuclear facilities under his/her jurisdiction.
- (5) Ensure that DOE contractors under his/her jurisdiction, responsible for DOE Hazard Category 1, 2, and 3 nuclear facilities, establish a System Engineer Program, maintain the active safety class and safety significant SSCs, as defined in the safety bases for these facilities, and other active SSCs that perform an important defense-in-depth function consistent with their design basis, preserve the SSC design basis and supporting documentation, conduct periodic SSC reviews, and designate a qualified Cognizant System Engineer for each safety SSC in accordance with DOE O 420.1A, subparagraph 4.5, and Attachment 2, and other applicable documents referenced in Paragraph 6 of this Chapter.

d. Director, Safety and Health Division.

- (1) Serves as the designated ORO AHJ for fire protection matters.

5. REQUIREMENTS AND PROCEDURES. None.

6. REFERENCES.

- a. Executive Order 12699, SEISMIC SAFETY OF FEDERAL AND FEDERALLY ASSISTED OR REGULATED NEW BUILDING CONSTRUCTION, dated January 5, 1990.
- b. Executive Order 12941, SEISMIC SAFETY FOR EXISTING FEDERALLY OWNED OR LEASED BUILDING, dated December 5, 1994.
- c. DOE G 420.1-1, NONREACTOR NUCLEAR SAFETY DESIGN CRITERIA AND EXPLOSIVES SAFETY CRITERIA FOR USE WITH DOE O 420.1, *FACILITY SAFETY*, dated March 28, 2000.
- d. DOE G 420.1-2, GUIDE FOR THE MITIGATION OF NATURAL PHENOMENA HAZARDS FOR DOE NUCLEAR FACILITIES AND NONNUCLEAR FACILITIES, dated March 28, 2000.
- e. DOE O 433.1, MAINTENANCE MANAGEMENT PROGRAM FOR DOE NUCLEAR FACILITIES, dated June 1, 2001.
- f. DOE O 440.1A, WORKER PROTECTION MANAGEMENT FOR DOE FEDERAL AND CONTRACTOR EMPLOYEES, dated March 27, 1998.
- g. DOE G 440.1-5, IMPLEMENTATION GUIDE FOR USE WITH DOE ORDERS 420.1 AND 440.1 FIRE SAFETY PROGRAM, dated September 30, 1995.
- h. DOE M 440.1-1, DOE EXPLOSIVES SAFETY MANUAL, dated September 30, 1995.
- i. DOE G 450.1-4, IMPLEMENTATION GUIDE – WILDLAND FIRE MANAGEMENT PROGRAM FOR USE WITH DOE 450.1, *ENVIRONMENTAL PROTECTION PROGRAM*, dated February 11, 2004.
- j. DOE 5480.20A, Change 1, PERSONNEL SELECTION, QUALIFICATION, AND TRAINING REQUIREMENTS FOR DOE NUCLEAR FACILITIES, dated July 12, 2001.
- k. DOE-STD-1020-2002, NATURAL PHENOMENA HAZARDS DESIGN AND EVALUATION CRITERIA FOR DEPARTMENT OF ENERGY FACILITIES, dated January 2002.
- l. DOE-STD-1022-94, Change Notice No. 1, Reaffirmed with Errata, NATURAL PHENOMENA HAZARDS CHARACTERIZATION CRITERIA, dated April 2002.
- m. DOE-STD-1023-95, Change Notice No. 1, Reaffirmed with Errata, NATURAL PHENOMENA HAZARDS ASSESSMENT CRITERIA, dated April 2002.
- n. DOE-HDBK-1062-96, DOE FIRE PROTECTION HANDBOOK.
- o. DOE-STD-1066-99, FIRE PROTECTION DESIGN CRITERIA, dated July 1999.
- p. DOE-STD-1073-2003, CONFIGURATION MANAGEMENT, dated October 2003.

- q. DOE-HDBK-1081-94, PRIMER ON SPONTANEOUS HEATING AND PYROPHORICITY, dated December 1994, Reaffirmed with memorandum January 2001.
 - r. DOE-STD-1088-95, FIRE PROTECTION FOR RELOCATABLE STRUCTURES, dated June 1995, Reaffirmed with memorandum June 2000.
 - s. DOE-STD-1137-2000, FIRE PROTECTION ENGINEERING FUNCTIONAL AREA QUALIFICATION STANDARD, dated July 2000.
 - t. DOE-STD-3024-98, CONTENT OF SYSTEM DESIGN DESCRIPTIONS, dated October 1998.
 - u. ORO O 220, Chapter XI, OAK RIDGE OPERATIONS ASSESSMENT PROGRAM, dated June 1, 2004.
 - v. TM5-1300, STRUCTURES TO RESIST THE EFFECTS OF ACCIDENTAL EXPLOSIONS.
 - w. DOE/TIC-11268, A MANUAL FOR THE PREDICTION OF BLAST AND FRAGMENT LOADING OF STRUCTURES.
7. DEFINITIONS. None.
8. CONTRACTOR REQUIREMENTS DOCUMENT. None.
9. ATTACHMENTS. None.