



# **DOE O 422.1 *Conduct of Operations***

Formerly DOE O 5480.19, *Conduct of Operations Requirements for DOE Facilities*

**September 2010**

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## Background on Conduct of Operations Order

- **November 1989** Institute for Nuclear Power Operations (INPO) guidance for Conduct of Operations circulated to DOE sites for comment.
- **March 1990** INPO document revised into DOE Order format and distributed for comment.
- **May 26, 1990** Secretary Watkins issued the Order.
- At the time, DOE planned to issue a Rule on Conduct of Operations.
- Order slightly revised in the intervening years to incorporate NNSA, and to name the entire Order a Contractor Requirements Document.

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## Revision of Conduct of Operations Order

- Original Order was included as part of a major safety directive review, and followed the Secretary's principles governing Departmental directives.
  - Revision Activities:
    - Assembled a team of DOE (HQ and Field) and Contractor employees experienced in conduct of operations.
    - Initial team meeting was held in March 2008.
    - Conducted over 20 conference calls and live meeting sessions.
    - Developed 17 drafts with team input, review, consensus.
    - Multi-organizational Red Team, DNFSB, and HSS management reviews.
    - Team received over 200 comments from over 20 reviewers that were resolved before going to RevCom.
    - Full Directives Review Team concurred on RevCom ready directive.
    - RevCom review performed.
    - New Order 422.1 issued June 29, 2010.
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## Writing Team

Co-Chair:	Earl Hughes	HS-21
Co-Chair:	Jeff Cravens	NNSA/YSO
	Earl Carnes	HS-31
	Larry Earley	EM/RL
	Tyrone Harris	SC/OR
	Kim Hauer	EM/WSRC
	Todd Lapointe	Energy/CNS
	Ed Lessard	SC/BNL
	Don Rack	EM-62 Denver
	Craig Scott	EM-62 HQ
	Bob Seal	NE/ID
	Mark Zagar	MAS Consultants (HSS Support)

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## Writing Team Approach

- Worked collaboratively with stakeholders to satisfy the need for clear, concise directives that are not overly prescriptive or duplicative.
- Recognized the original Order had only a few “must” statements, and contained language style made some requirements sound like suggestions.
- Recognized that some line and oversight organizations considered the 625 “guidelines” to be requirements.
- Recognized original Order predated the Nuclear Safety Rule, and that it is one of the safety management programs listed in the Rule as part of a Documented Safety Analysis.
- Recognized ISM and 10 CFR 851 had been implemented since the last revision of the Order, and understood their influence on the safety of operations.
- Eliminated duplication of Laws, Regulations, and National Standards.

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## Writing Team Approach

- Reinforced the “What vs. How” concept by clearly defining requirements and refraining from mandating how to fulfill the requirements.
- Considered cost implications; determined they would be minimal based on preservation of topical organization and a few changes in program elements from current universally applicable Order.
- Preserved the organization (18 chapters) and implementation method (matrix) of the original Order to reduce impact on existing implementation. New Order has 18 Topical Areas with 2–10 Requirements per Topical Area.
- Organized requirements to facilitate continued use of documents prepared for the original Order.
- Circulated near-final versions of the new Order for limited peer and management review.

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## Retained from Original Order

- Contractors (or DOE/NNSA for GOGOs) develop documentation demonstrating implementation of the CRD requirements. Implementation is demonstrated by providing, at a minimum, a Conduct of Operations Matrix
- The Conduct of Operations Matrix may be provided through direct use of Appendix A or by use of equivalent documents or electronic systems. New documents unnecessary - minimum is a Conduct of Operations Matrix listing each Specific Requirement, citing the implementing documentation or providing justification for those not implemented.
- DOE/NNSA Line Management approval of the implementation documentation (matrix).

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## Specific Requirements

- Organization and Administration (7)
- Shift Routines and Operating Practices (10)
- Control Area Activities (5)
- Communications (5)
- On-shift Training (4)
- Investigation of Abnormal Events, Conditions, and Trends (6)
- Notifications (2)
- Control of Equipment and System Status (8)
- Lockout and Tagouts (8)
- Independent Verification (5)
- Logkeeping (6)
- Turnover and Assumption of Responsibilities (3)
- Control of Interrelated Processes (3)
- Required Reading (3)
- Timely Instructions/Orders (4)
- Technical Procedures (9)
- Operator Aids (5)
- Component Labeling (4)

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## Program Purposes Defined in Order 422.1

- The goal is to minimize the likelihood and consequences of human fallibility or technical and organizational system failures.
- Conduct of Operations is one of the safety management programs recognized in the Nuclear Safety Rule [Title 10 Code of Federal Regulations (CFR) Part 830, *Nuclear Safety Management*], but it also supports safety and mission success for a wide range of hazardous, complex, or mission-critical operations, and some conduct of operations attributes can enhance even routine operations.
- It supports the Integrated Safety Management (ISM) System by providing concrete techniques and practices to implement the ISM Core Functions of Develop and Implement Hazard Controls and Perform Work Within Controls.

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## Provided Key Definitions

- Conduct of Operations Program. The formal documentation, practices, and actions implementing disciplined and structured operations that support mission success and ensure worker, public, and environmental protection. The program goal is to minimize the likelihood and consequences of human fallibility or technical and organizational system failures.
- Operations. The general term to encompass the work activities accomplished by the facility or project. Examples include, but are not limited to, operating science and technology machines, operating equipment, construction, decontamination and decommissioning, dismantlement, environmental characterization and monitoring activities, waste handling, research and development, maintenance, and laboratory analysis activities.

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## Changes included in New Order

- Applicability is determined by hazard categorization instead of a “one size fits all” perspective. Original Order applied to all DOE elements, revision applies directly to HazCat 1, 2, and 3 Nuclear Facilities, and applies to other facilities only if directed by DOE/NNSA.
- Topics are provided as high-level statements, expanded in a Conduct of Operations Matrix through Requirements and Detailed Attributes.
- Each topic cites the applicable DOE Technical Standard for information and examples, but are not requirements. (Standards are to be revised)
- DOE reviewers of Contractor implementation documents must be familiar with the applicable Technical Standards.
- Periodic review of Program, and approval of the implementation documentation occurs at least every three years to ensure currency.
- Order reformatted to follow current directive templates.
- DOE/NNSA Line Management appointment of Facility Representatives per DOE STD 1063 now referenced.
- GOGO provisions clarified.

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# Example Requirement and Detailed Attributes

## Organization and Administration

### Requirement

2.a.(6) Methods for the analysis of hazards and implementation of hazard controls in the work planning and execution process

### Detailed Attributes

- a. The DOE Integrated Safety Management System is used to plan work
- b. Operations personnel are trained in, and understand, integrating safety into work planning

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**Questions ?**