



Strengthening Line Management Oversight and  
Federal Monitoring of Nuclear Facilities

**Standard Review Plan**  
**Code of Record**



**May 2014**

# OFFICE OF ENVIRONMENTAL MANAGEMENT

## Standard Review Plan

### Code of Record

Applicability						
CD-0	CD-1	CD-2	CD-3	CD-4	Operation	Post Operation
	✓	✓	✓	✓	✓	✓



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## Table of Contents

Objective .....	2
Code of Record References .....	2
Attachment - Code of Record Lines of Inquiry .....	5

## **Objective**

The objective of this Standard Review Plan (SRP) on Code of Record (COR) is to provide guidance for a uniform review of the COR for DOE nuclear projects. DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, defines the COR as:

*“A set of requirements, including Federal and state laws, as defined in contracts and Standards or Requirements Identification Documents (or their equivalent), that are in effect at the time a facility or item of equipment was designed and accepted by DOE. It is initiated during the conceptual design phase and prior to approval of CD-1. It is placed under configuration control to ensure it is updated to include more detailed design requirements as they are developed during preliminary design and prior to approval of CD-2. It is controlled during final design and construction with a process for reviewing and evaluating new and revised requirements to determine their impact on project safety, cost and schedule before a decision is taken to revise the Code of Record.”*

The Office of Environmental Management Interim Policy, *Code of Record for Nuclear Facilities*, established the expectations for a disciplined and consistent approach in establishing the COR for new nuclear facilities and major modifications<sup>1</sup> to existing nuclear facilities that affect the authorization basis or safety basis. Those expectations were mostly adopted by the DOE O 413.3B requirements. EM expectations not found in DOE O 413.3B are included in the table below to form a complete view of the requirements.

## **Code of Record References**

The following references were used to develop the COR Lines of Inquiry in the Attachment. Also, the Oak Ridge EM COR procedure provides Best Management Practices for additional Lines of Inquiry development.

- DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Asset*, November 29, 2010
- Office of Environmental Management Interim Policy, *Code of Record for Nuclear Facilities*, September 3, 2009
- Oak Ridge Office of Environmental Management Procedure EM-3.4, Rev 1, *Code of Record for EM Nuclear Facilities*, October 1, 2013.

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<sup>1</sup> As defined in DOE-STD-1189-2008, *Integration of Safety Into The Design Process*, a major modification to a DOE nuclear facility include facility changes that are completed on or after April 9, 2001 and these changes substantially alter the existing safety basis of the facility.

DOE O 413.3B and the EM Interim Policy specified the following COR requirements.

Programmatic or Project/Facility Phase	Requirement	Reference
Programmatic	A COR contains or references requirements that directly affect public, worker, environmental, or nuclear safety; engineering disciplines, including civil, structural, mechanical, electrical, instrumentation and control, piping, and fire protection; and management systems including safety, security, and quality assurance. The COR includes Federal and state laws and regulations, DOE requirements, and specific design criteria defined by national codes and standards. This includes national codes and standards invoked through 10 CFR Part 830, <i>Nuclear Safety Management</i> ; 10 CFR Part 851, <i>Worker Safety and Health Program</i> ; the design criteria in DOE O 420.1 B, <i>Facility Safety</i> , or its successor directive, and through applicable state and local building codes.	EM Interim Policy
Programmatic	EM field management establishes the required COR format (i.e., stand alone document or integrated with existing project and safety documents), content, and the method and timing for approval as a part of the Critical Decision process or contract deliverables.	EM Interim Policy
Programmatic	The COR and its supporting documents (e.g., as-built drawings, design calculations) are organized in a manner that supports accessibility, traceability, and maintainability. This is crucial to an effective and safe turnover of the facility between organizations and Critical Decision phases (e.g., from construction to startup phases or from an operating to decommissioning contractor).	EM Interim Policy
Programmatic	The COR is controlled during final design and construction with a process for reviewing and evaluating new and revised requirements to determine their impact on project safety, cost, and schedule before a decision is taken to revise the COR. New or modified requirements are implemented if technical evaluations determine that there is a substantial increase in the overall protection of the worker, public, or environment, and that the direct and indirect costs of implementation are justified in view of this increased protection.	EM Interim Policy
Programmatic	The COR is included as part of the turnover documentation from a design and construction phase contractor to the operating phase contractor; from an operating phase contractor to the decommissioning phase contractor; and when a change in contractor occurs during any single lifecycle phase.	EM Interim Policy
Prior to CD-1, <i>Approve Alternative Selection and Cost Range</i>	For nuclear facilities, a Code of Record shall be initiated during the conceptual design.	DOE O 413.3B Table 2.1, <i>CD-1 Requirements</i>

Programmatic or Project/Facility Phase	Requirement	Reference
	The COR is initiated during the conceptual design phase and prior to EM approval of Critical Decision-1. At this stage, a COR includes applicable Federal and state laws and regulations and DOE directives such as those defined in the contracts and Standards Requirements Identification Documents (or their equivalent).	EM Interim Policy
Prior to CD-2, <i>Approve Performance Baseline</i>	For nuclear facilities, design reviews should include a focus on safety and security systems. Additionally, the Code of Record shall be placed under configuration control during preliminary design.	DOE O 413.3B Table 2.2, <i>CD-2 Requirements</i>
	The COR is placed under configuration control to ensure that it is updated to include more detailed design requirements during preliminary design and prior to EM approval of Critical Decision-2.	EM Interim Policy
Prior to CD-3, <i>Approve Start of Construction or Execution</i>	For nuclear facilities, the Code of Record is controlled during final design and construction with a process for reviewing and evaluating new and revised requirements. This will determine their impact on project safety, cost and schedule before a decision is made to revise the Code of Record. New or modified requirements are implemented if technical evaluations determine that there is a substantial increase in the overall protection of the worker, public or environment, and that the direct and indirect costs of implementation are justified in view of this increased protection.	DOE O 413.3B Table 2.3, <i>CD-3 Requirements</i>
Prior to CD-4, <i>Approve Start of Operation or Project Completion</i>	For nuclear facilities, the Code of Record will be included as part of the turnover documentation from a design and construction phase contractor to the operating phase contractor; from an operating phase contractor to the decommissioning phase contractor; and when a change in contractor occurs during any single life-cycle phase and maintained under configuration control.	DOE O 413.3B Table 2.4, <i>CD-4 Requirements</i>
Post CD-4 and Before Project Closeout	The COR is controlled and maintained current after Critical Decision-4, and for facilities that are operating or undergoing decommissioning. Control and maintenance is established using a process (for example, under configuration management programs) to review and evaluate new and revised requirements and EM-approved exemptions from, or equivalencies to, requirements. The review shall determine the impact of the new or revised requirements on project safety, cost, and schedule before a decision is taken to revise the COR. New or modified requirements are implemented if technical evaluations determine that there is a substantial increase in the overall protection of the worker, public, or environment, and that the direct and indirect costs of implementation are justified in view of this increased protection. Whether initiated by EM or the contractor, any proposed backfit to the COR shall be supported by technical evaluations, including cost-benefit analyses.	EM Interim Policy

**Attachment  
Code of Record Lines of Inquiry<sup>2</sup>**

	<b>Lines of Inquiry</b>	<b>Reference</b>
1	Do the contractor and DOE organization have processes/procedures to define responsibilities and requirements for implementing the COR requirements?	Best Management Practice
2	Do contractor procedures address how the COR is kept current based on its reliance on the contract requirements including DOE directives?	Best Management Practice
3	Is the COR developed for a new nuclear project or for a major modification of an existing nuclear facility?	EM Interim Policy
4	Does the COR include Federal and state laws and regulations, DOE requirements, and specific design criteria defined by national codes and standards with dates/editions/revisions and any approved exceptions/equivalencies?	EM Interim Policy
5	Does the COR contain or reference requirements that directly affect: 1) public, worker, environmental, or nuclear safety; 2) engineering disciplines, including civil, structural, mechanical, electrical, instrumentation and control, piping, and fire protection; and 3) management systems including safety, security, and quality assurance?	EM Interim Policy DOE O 413.3B
6	Has EM Field Management established the required format, content, and the method and timing for approval of the COR as part of the CD process or contract deliverables?	EM Interim Policy
7	Does the COR development process include the: <ul style="list-style-type: none"> <li>• DOE contracting and authorization processes,</li> <li>• Contractor design and safety management processes,</li> <li>• Facility Authorization Agreement, and</li> <li>• DOE Prime Contract?</li> </ul>	Best Management Practice
8	Are the COR and its supporting documents organized in a manner that supports accessibility, traceability, and maintainability?	EM Interim Policy
9	Was the COR submitted to DOE for approval as part of each Critical Decision package for CD-1, 2, 3, and 4?	DOE O 413.3B Tables 2.1 to 2.4

<sup>2</sup> These Lines of Inquiry provide a starting point for a set of corporate Performance Expectations and Criteria. Review teams are expected to build on these and develop additional project-specific Lines of Inquiry, as needed.

	<b>Lines of Inquiry</b>	<b>Reference</b>
10	Was the formal approval of the COR communicated to the contractor?	DOE O 413.3B Tables 2.1 to 2.4
11	Is the COR development initiated during conceptual design phase prior to CD-1 approval?	DOE O 413.3B Table 2.1 EM Interim Policy
12	Is the COR placed under configuration control during preliminary design phase to ensure that it is updated to include more detailed design requirements prior to CD-2 approval?	DOE O 413.3B Table 2.2 EM Interim Policy
13	Is the COR placed under configuration control during final design phase and construction and for CD-3 approval?	DOE O 413.3B Table 2.3 EM Interim Policy
14	Is the COR included as part of the turnover documentation from design and construction phase contractor to the operating phase contractor; from an operating phase contractor to the decommissioning phase contractor?	DOE O 413.3B Table 2.4 EM Interim Policy
15	Is the COR included as part of the turnover documentation when a change in contractor occurs during any single life-cycle phase? Is the COR maintained under configuration control?	DOE O 413.3B Table 2.4 EM Interim Policy
16	Is the COR kept current and maintained after CD-4 during facility operations using methods such as configuration management?	EM Interim Policy
17	Is the COR kept current and maintained during facility deactivation, long-term surveillance and maintenance and decommissioning using methods such as configuration management?	EM Interim Policy
18	If there are any new or modified requirements which can impact the COR, are technical evaluations conducted to determine if there is any substantial increase in the overall protection of the worker, public, or environment, and that the direct and indirect costs of implementation are justified in view of this increased protection?	DOE O 413.3B Table 2.3 EM Interim Policy
19	If the COR needs to be “back fitted” or updated, are there any technical evaluations, including cost-benefit analyses performed?	EM Interim Policy



	<b>Lines of Inquiry</b>	<b>Reference</b>
20	Is there an established approval process if back fit analysis is needed? Has a “back fit review committee” been established to evaluate and make back fit recommendations?	Best Management Practice
21	Is there a process in place to require a COR submittal from the contractor for DOE approval?	Best Management Practice