DOE - EM - SRP - 2010 2nd Edition

Environmental Management Safety • Performance • Cleanup • Closure



# STANDARD Review Plan (SRP)

# **CONCEPTUAL DESIGN REVIEW MODULE**



CORPORATE CRITICAL DECISION (CD) REVIEW AND APPROVAL FRAMEWORK ASSOCIATED WITH NUCLEAR FACILITY CAPITAL AND MAJOR CONSTRUCTION PROJECTS

March 2010

OFFICE OF ENVIRONMENTAL MANAGEMENT U.S. DEPARTMENT OF ENERGY WASHINGTON D. C. 20585

#### OFFICE OF ENVIRONMENTAL MANAGEMENT

Standard Review Plan (SRP)

# **Conceptual Design**

**Review Module** 

Critical Decision (CD) Applicability					
CD-0	CD-1	CD-2	CD-3	CD-4	<b>Post Operation</b>
	<b>√</b>				



March 2010

#### FOREWORD

The Standard Review Plan (SRP)<sup>1</sup> provides a consistent, predictable corporate review framework to ensure that issues and risks that could challenge the success of Office of Environmental Management (EM) projects are identified early and addressed proactively. The internal EM project review process encompasses key milestones established by DOE O 413.3A, Change 1, *Program and Project Management for the Acquisition of Capital Assets*, DOE-STD-1189-2008, *Integration of Safety into the Design Process*, and EM's internal business management practices.

The SRP follows the Critical Decision (CD) process and consists of a series of Review Modules that address key functional areas of project management, engineering and design, safety, environment, security, and quality assurance, grouped by each specific CD phase.

This Review Module provides the 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. The criteria and the review process are intended to be used on an ongoing basis during the appropriate CD phase to ensure that issues are identified and resolved.

<sup>&</sup>lt;sup>1</sup> The entire EM SRP and individual Review Modules can be accessed on EM website at <u>http://www.em.doe.gov/Pages/Safety.aspx</u>, or on EM's internet Portal at <u>https://edoe.doe.gov/portal/server.pt</u> Please see under /Programmatic Folder/Project Management Subfolder.

## TABLE OF CONTENTS

I.	INTRODUCTION	.1
II.	PURPOSE	.1
III.	ROLES AND RESPONSIBILITIES	.2
IV.	REVIEW SCOPE AND CRITERIA	.3
V.	REVIEW PLANS AND DOCUMENTATION	.5
VI.	REFERENCE MATERIAL	.6
APPE	NDIX A - PERFORMANCE OBJECTIVES AND CRITERIA A	-1

## ACRONYMS

CD	Critical Decision
CDR	Conceptual Design Review
CSDR	Conceptual Safety Design Report
DOE	Department of Energy
EIR	External Independent Review
EM	Office of Environmental Management
FHA	Fire Hazards Analysis
FPD	Federal Project Director
FRAM	Functions, Responsibilities, and Authorities Manual
IPR	Independent Project Review
IPT	Integrated Project Team
LOI	Line of Inquiry
PHA	Preliminary Hazards Analysis
SDIT	Safety Design Integration Team
SEI	Structural Engineering Institute
SDR	Safety Design Report
SME	Subject Matter Expert
SSC	Structure, System, or Component
WBS	Work Breakdown Structure

#### I. INTRODUCTION

Design Reviews are an integral part of the contractor and federal project management process. As stated in DOE O 413.3A, *Program and Project Management for the Acquisition of Capital Assets:* 

#### **Technical Independent Project Review**

Prior to CD-1 approval, the Program Secretarial Officer will perform a Technical Independent Project Review (IPR) to ensure safety and security is effectively integrated into design and construction for high risk, high hazard, and Hazard Category 1, 2, and 3 nuclear facilities. The review should ensure safety documentation is complete, accurate and reliable for entry into the next phase of the project.

#### Design Reviews

Beginning at CD-1 and continuing through the life of the project, as appropriate, Design Reviews are performed by individuals external to the project. Design Reviews are performed to determine if a product (drawings, analysis, or specifications) is correct and will perform its intended functions and meet requirements. Design Reviews must be conducted for all projects and must involve a formalized, structured approach to ensure the reviews are comprehensive, objective, and documented.

Completion of a Conceptual Design Review (CDR) in support of CD-1 is an essential element to the assurance that the selected alternative meets the mission needs statement and the operational, safety and environmental requirements applicable to the project. The conceptual design must clearly and concisely describe the recommended alternative, the requirements and function that must be performed and the key performance parameters that form the basis of the Performance Baseline.

#### II. PURPOSE

This Review Module is a tool that assists Department of Energy (DOE) federal project review teams in evaluating the adequacy of the conceptual design package prior to CD-1 approval. It focuses on the conceptual design package key elements including requirements analysis, safety design basis, alternatives analysis, systems engineering, value management, risk analysis, and acquisition strategy. This module has been developed to ensure that the conceptual design process has effectively integrated requirements identification and analysis, acquisition strategies, and concept exploration to evolve a cost-effective, preferred solution to meet a mission need (DOE O 413.3A). Upon completion of the CDR the team will have sufficient evidence to support the Federal Project Director (FPD) in their decision regarding approval of CD-1.

#### III. ROLES AND RESPONSIBILITIES

A successful CDR depends on an experienced and qualified team. The team should be augmented with appropriate subject matter experts (SMEs) selected to complement the specific technical concerns of the project being reviewed. The specific types of expertise needed will be dependent on the type of facility being reviewed, as well as other factors such as complexity, hazards, and risks.

It is preferred that personnel selected to participate in a design review have design experience. This is particularly relevant for reviewers who evaluate engineering design elements against industry standards or other regulatory design requirements. It may not be practical or necessary for some other subject matter experts, such as various safety disciplines, to have this experience.

It is strongly recommended that the team leader should either be a project or systems engineer experienced in the management of a multi-disciplined review team (e.g., mechanical, electrical, chemical, industrial, nuclear) that matches to the extent practicable the contractors design team. The review team should be augmented with subject matter experts as appropriate to review specialty matters such as structural analysis, seismic design criteria, criticality, and energetic reactions.

Management support is another necessary component to a successful CDR. Field element managers, as well as the Federal Project Director, must recognize the importance of the CDR and facilitate the resources necessary for its execution. This also requires appropriate interfaces with EM Headquarters personnel who may direct or participate in the CDR process.

The roles and responsibilities for all involved in the CDR must be clear and consistent with various requirements of DOE O 413.3A and the DOE *Functions, Responsibilities, and Authorities Manual* (FRAM). The table below provides a compilation of conceptual design review roles and responsibilities.

Position	Responsibility
	Provides support and resources to the Federal Project Director and
Field Flomont	Review Team Leader in carrying out the design review.
Manager	Facilitates the conduct of the design review. Assigns office space,
Manager	computer equipment, and support personnel to the team as necessary to accomplish the review in the scheduled time frame
	Identifies the need for a CDR and determines the scope of the review effort.
	In conjunction with the Contractor Project Manager, develops the briefing
	materials and schedule for the review activities.
	Coordinates the review team pre-visit activities and follows up review
Federal Project	team requests for personnel to interview or material to review.
Director	Coordinates the necessary training and orientation activities to enable
	the review team members to access the facility and perform the review.
	Unless other personnel are assigned, acts as the site liaison with the
	review team. Tracks the status of requests for additional information.
	Coordinates the Federal site staff factual accuracy review of the draft
	report.

Position	Responsibility
	Leads the development of the corrective action plan if required. Tracks
	the completion of corrective actions resulting from the review.
	In coordination with the Federal Project Director and the Acquisition
	Executive, selects the areas to be reviewed.
	Based on the areas selected for review, project complexity and hazards
	involved, selects the members of the review team.
	Verifies the qualifications: technical knowledge; process knowledge;
	facility specific information; and independence of the Team Members.
	Leads the design review pre-visit.
	Leads the review team in completing the Review Criteria for the various
	areas to be reviewed.
	Coordinates the development of the data call and forwards to the Federal
Review Team	Project Director, a list of documents, briefings, interviews, and
Leader	presentations needed to support the review.
	Forwards the final review plan to the Acquisition Executive for approval.
	Leads the on-site portion of the review.
	Ensures the review team members complete and document their
	portions of the review and characterizes the findings.
	Coordinates incorporation of factual accuracy comments by Federal and
	Contractor personnel on the draft report.
	Forwards the final review report to the Acquisition Executive for
	consideration in making the decision to authorize start of construction.
	Participates, as necessary in the closure verification of the findings from
	the review report.
	Refines and finalizes the criteria for assigned area of the review.
	Develops and provides the data call of documents, briefings, interviews,
	and presentations needed for his or her area of the review.
	Completes training and orientation activities necessary for the review.
	Conducts any necessary pre visit document review.
	Participates in the on-site review activities, conducts interviews,
	document reviews, walk downs, and observations as necessary.
Review Team	Based on the criteria and review approaches in the Review Plan,
Member	assesses whether his or her assigned criteria have been met.
	Documents the results of the review for his or her areas. Prepares input
	to the review report.
	Makes recommendations to the Review Team Leader for
	characterization of findings in his or her area of review.
	Resolves applicable Federal and Contractor factual accuracy comments
	on the dratt review report.
	Prepares the final review report for his or her area of review.

#### IV. REVIEW SCOPE AND CRITERIA

This Review Module provides a set of review criteria that are organized based on the key technical and safety areas and disciplines identified in the DOE Orders and guidance. These review areas are summarized below and include general requirements, requirements analysis, configuration management, safety design basis, conceptual design report, alternatives analysis, systems engineering and value management, risk analysis, and acquisition strategy. For each

review area, Appendix A of this Module provides overall performance objectives and then a subset of review criteria that satisfy each performance objective. These performance objectives and review criteria will provide consistent guidance to project-specific design review teams to develop their Lines of Inquiry (LOIs).

#### General Requirements

This area of the review is intended to ensure that the conceptual design package meets the requirements and guidance of the DOE orders and manuals. This review area also addresses the relationship of the conceptual design to the needs and mission expectations as well as the overall process goals. The general requirements area also evaluates the programs and processes used to track and validate technical issues and assumptions used in the conceptual design package development. Several of the general requirements LOIs are directly related to lessons learned identified in past DOE projects.

#### **Requirement** Analysis

This area is focused on ensuring that the conceptual design package demonstrates a systematic and comprehensive process for selecting applicable safety and health requirements to be applied to the design effort. Specifically, the lines of inquiry are designed to ensure that the requirement analysis process developed the programmatic, system, functional or technical requirements for hardware, software, facilities, procedures, technical data, and personnel training.

#### Safety Design Basis

The purpose of this review area is to ensure that the conceptual design package has adequately implemented the safety-in-design process to integrate safety in the design development process. This review area also addresses the requirement for the completion a preliminary hazards analysis for the preferred alternative and the associated identification of safety class, safety significant and important to safety systems, structures and components.

#### Conceptual Design Report

This review area is designed to ensure that the conceptual design report meets all of the requirements and includes the key elements as identified in DOE orders and guidance documents.

#### Alternatives Analysis

This review area ensures that the conceptual design process and documentation adequately analyzed the appropriate alternatives before ultimately deciding upon the preferred alternative. Each of the alternatives considered must be rigorously evaluated to ensure that the conceptual design process is adequately executed and that the preferred alternative is the best available alternative to meet the mission needs.

#### Systems Engineering and Value Management

This review area is focused on the evaluation of the systems engineering and value management process as applied to the development of the conceptual design package. The implementation of systems engineering and value management processes are an essential element to the ultimate success of a project design.

#### Risk Analysis

The purpose of this review area is to ensure that the project risks associated with the alternatives including the preferred alternative are systematically identified, and managed using a documented and adequate process. Risk identification and management is essential to the overall success of the project, and the risks associated with all of the considered alternatives need to be considered as part of the determination of the preferred alternative.

#### Acquisition Strategy

A major emphasis of the CDR is on the development and implementation of an effective acquisition strategy for the project. A carefully developed and consistently executed strategy is one of the keys to a successful project. This review area addresses the key elements and requirements of such a successful strategy.

#### V. REVIEW PLANS AND DOCUMENTATION

The results of a CDR will be used by the DOE Federal Project Director and ultimately the Acquisition Executive to help determine whether project funds may be authorized by approval of CD-1. It is important to clearly document the methods, assumptions and results of the CDR. The overall Standard Review Plan provides guidelines for preparing a Review Plan and a final report.

The following activities should be conducted as part of the Review Plan development and documentation/closure of the review:

- The review team members should develop specific lines of inquiry utilizing the topics and areas listed in the respective appendices of this module.
- The individual lines of inquiry should be compiled and submitted to the manager authorizing the review for concurrence prior to starting the review.
- The project-specific review plan should be compiled with a consistent and uniform numbering scheme that provides for a unique identifier for each line of inquiry, arranged by subject area (e.g. Management-Personnel and Qualifications, Management-Processes and Systems, Technical-Civil) such that the results of each line of inquiry can be documented and tracked to closure.
- The lines of inquiry should be satisfied via document review and personnel interviews and any combination of these methods. The method used the basis for closure, comment, finding and the result of the inquiry should all be documented and tracked.

The report produced from the review should follow the format (but in abbreviated form) of an External Independent Review (EIR) or Independent Project Review (IPR) report with the focus on a composite listing of the lines of inquiry and the results of each.

#### VI. REFERENCE MATERIAL

- DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets
- DOE M 413.3-1, Project Management for the Acquisition of Capital Assets
- DOE-STD-1189-2008, Integration of Safety into the Design Process
- DOE O 420.1B, Facility Safety
- DOE O 430.1B, Real Property Asset Management
- DOE G 430.1-1, Cost Estimating Guide, Chapter 3, "Stages of Project Development"
- DOE-HDBK-1132-99, Design Considerations
- DOE O 414.1C, Quality Assurance

#### APPENDIX A: PERFORMANCE OBJECTIVES AND CRITERIA

#### Legend of Conceptual Design Topics

Review Topical Area	Identifier
General Requirements	GR
Requirements Analysis	RA
Safety Design Basis	SB
Conceptual Design Report	CD
Alternatives Analysis	AA
Systems Engineering and Value Management	SE
Risk Analysis	RE
Acquisition Strategy	AS

ID #	Performance Objectives and Criteria <sup>2</sup>	Met?
Genera	I Requirements	
GR-1	Does the conceptual design document demonstrate compliance with the	
	requirements for DOE O 413.3A and the associated guidance?	
	Does documentation shows that the conceptual design process was	
	executed in a methodical manner that led to the evaluation of an	
	appropriate set of alternatives? (GR-1.1)	
	Is the research, development, and testing associated with the	
	conceptual design and documentation process adequately performed	
	and well-documented, including assumptions and conclusions?	
	(GR-1.2)	
	Do the conceptual design and supporting documentation identify areas	
	where the execution of the preferred alternative will require negotiation	
	with regulators? (GR-1.3)	
	Does the conceptual design process adequately implement the value	
	management process to identify and select alternatives? (GR-1.4)	
	Does the conceptual design documentation include a preliminary cost	
	and schedule for the project that is reasonable and executable?	
0.0.0	(GR-1.5)	
GR-2	Does the conceptual design meet mission need expectations and meet the	
	Performance Requirements developed in the Design Requirements	
	Document?	
	Have the conceptual design address safety and health standards,	
	technical risks, construction, and operability requirements? (GR-2.1)	
	Are design assumptions entered and tracked to ensure their resolution	
	prior to the issuance of the final design? (GR-2.2)	
	Does the conceptual design incorporate adequate provisions for the	
	sate removal, treatment, and disposition of secondary waste and other	
	byproducts of the process? (GR-2.3)	

<sup>&</sup>lt;sup>2</sup> The site should provide the technical bases and assumptions that support the answers provided to each Line of Inquiry. If possible, the review teams should independently verify the technical bases and assumptions.

ID #	Performance Objectives and Criteria <sup>2</sup>	Met?
	Does the conceptual design incorporate construction and process	
	materials suitable for the site and process environment? (GR-2.4)	
	Has the project identified all assumptions and requirements that are	
	required to be carried forward to ensure that design, construction, and	
	administrative controls are developed? (GR-2.5)	
GR-3	Is there a process in place to resolve technical uncertainties and validate	
	design assumptions?	
	Is there a process in place to ensure that all elements of the process	
	are demonstrated at full scale and that production throughput is	
	verified by demonstration or calculation? (GR-3.1)	
	Is there design assumptions identified and is there a process to verify	
<u> </u>	them with actual field measurement or modeling? (GR-3.2)	
Require	ements Analysis	
RA-1	Does the conceptual design and supporting documentation identify the	
	applicable set of requirements for the design, construction, and operation of	
	Deep the requirement analysis process develop the programmetic	
	system functional or technical requirements for the project? (RA-1 1)	
	Are requirements identified in the requirement analysis process	
	adequately implemented in the conceptual design? (RA-1.2)	
RA-2	Does the conceptual design include the appropriate functional	
	requirements?	
	Does the requirements basis for the conceptual design include both	
	the functional requirements and the appropriate standards, orders, and	
	consensus standards for the project? (RA-2.1)	
	Are performances or system functional descriptions included as part of	
	the conceptual design and documentation? (RA-2.2)	
	Do the system functional requirements include sufficient detail for	
	establishing the criteria or limits against which the actual capability of	
	the system can be judged? (RA-2.3)	
	Do the subsystem and component requirements identify the specific	
	requirements required within the overall system? (RA-2.4)	
Safety	Basis Design	
2B-1	was the Safety-In-Design process used to evaluate the alternative design	
	Has a sofety analysis been performed for each of the considered	
	alterative design concents? (SB-1.1)	
	Were the safety analyses for alternatives performed in sufficient detail	
	enable management to make sound safety decisions? (SB-1.2)	
SB-2	The Safety-in-Design process as performed for the alternatives meets the	
	requirements and guidance of the applicable DOE orders and standards.	
	As design requirements are established for each alternative, are	
	engineering and safety personnel identified in alternative facility layout	
	and processing configurations? (SB-2.1)	
	Does the Safety-in-Design process involve a qualified, experienced	
	safety analyst in evaluating each of the alternatives considered?	
	(SB-2.2)	

ID #	Performance Objectives and Criteria <sup>2</sup>	Met?
SB-3	Does each alternative considered in the Safety-in-Design process	
	incorporate the key elements identified in the applicable orders and	
	standards?	
	Was the Safety-in-Design process used to evaluate the design	
	architecture? (SB-3.1)	
	was the Safety-In-Design process used to consider alternative facility	
	to facility releases or to minimize the threat of external events	
	associated with pearby facilities? (SB-3.2)	
	During the alternative analysis process, did the Independent Project	
	Team (IPT) and Safety Design Integration Team (SDIT) ensure that	
	the relative hazards, as well as the costs and uncertainties associated	
	with the hazard controls that address these hazards, are considered	
	for each alternative? (SB-3.3)	
SB-4	Has a Safety Design Strategy (SDS) been developed and implemented for	
	the project?	
SB-5	Has the safety analysis process been integrated into the design of safety-	
	class and safety-significant systems, structures, and components (SSCs)?	
	Has the safety analysis process been integrated in the design process	
	to identify and describe the SSCs and to satisfy the facility	
	performance requirements? (SB-5.1)	
	Have safety design requirements in DOE O 420.1B been addressed in	
	the design development? (SB-5.2)	
2B-0	Has a Conceptual Safety Design Report (CSDR) been prepared in	
	Accolutance with DOE-STD-1109-2006?	
	and documented? (SB-6.1)	
	Has the facility bazard categorization been established in accordance	
	with DOE-STD-1027-92? (SB-6.2)	
	Does the CSDR identify and analyze the primary facility hazards and	
	facility-level design basis accidents? (SB-6.3)	
	Does the CSDR provide an initial determination, based on the	
	Preliminary Hazards Analysis (PHA), of safety-class and safety-	
	significant SSCs? (SB-6.4)	
SB-7	Have the Safety-in-Design and Opportunity Assessment processes been	
	implemented in the conceptual design phase, consistent with the guidance	
	IN DOE-STD-1189-2008?	
	Were the Safety-in-Design and Opportunity Assessment processes	
	used to evaluate the overall safety design basis risks and opportunities	
	Have the ricks considered included the uncertainties related to the	
	nave the risks considered included the uncertainties related to the possibility that there may be additional costs and schedule impacts that	
	have not vet been identified? (SB-7.2)	
Concer	tual Design Report	
CD-1	Is the Conceptual Design Report (CDR) complete and adequate for the	
	project and includes the appropriate material to support the selection of the	
	recommended alternative?	

ID #	Performance Objectives and Criteria <sup>2</sup>	Met?
	Does the conceptual design documentation include a description of the	
	recommended alternative and a synopsis of the development	
	activities? (CD-1.1)	
	Does the CDR include a schedule and cost range, including the	
	resources necessary to complete the design and preparation	
	activities? (CD-1.2)	
	Does the CDR includes an alternatives analysis, including lifecycle	
	costs, operational considerations, site development considerations,	
	relationships to other site activities, and the comparison of alternatives	
	With the risks and the preferred alternative? (CD-1.3)	
CD-2	Have all of the applicable key elements been completed as part of the	
	conceptual design process phase of the project?	
	Has the requirement analysis from the pre-conceptual phase been further developed to include seferty functions and SSC requirements	
	and is decumented in the project technical requirements	
	and is documented in the project technical requirements documents	
	Have alternative design concepts been analyzed and a preferred	
	alternative has been selected? (CD-2.2)	
	Has a Conceptual Safety Design Report (CSDR) been developed to	
	auide the design, including description of strategies to address major	
	hazards, commitment to appropriate safety design criteria, and security	
	issues as applicable? (CD-2.3)	
	Has a preliminary hazards analysis (PHA) been performed to provide	
	the basis for the facility hazard categorization? (CD-2.4)	
	Has a preliminary fire hazards analysis (FHA) been performed that	
	identifies and assesses fire risks and defines levels of safety-in-design	
	that do not necessarily exist in the PHA? (CD-2.5)	
	Has a preliminary Security Vulnerability Assessment been completed	
	and factored into the PHA? (CD-2.6)	
	Has a facility-level Design Basis Accident (DBA) analysis been	
	performed to identify the major facility safety functions needed?	
	(CD-2.7)	
	Have SSCs and their safety classifications been proposed for the	
	major safety functions? (CD-2.8)	
	Has the Initial Safety-In-Design Risk and Opportunities Assessment	
	and an uncertainties in seferty and design considerations? (CD 2.0)	
	Here the CSDP been developed to design considerations? (CD-2.9)	
	design aspects of the facility? (CD 2 10)	
	Have the required technical studies necessary to resolve risks and	
	technology been identified? (CD-2 11)	
	Has DOF reviewed the CSDR and prepared a Concentual Safety	1
	Validation Report? (CD-2.12)	
CD-3	Does the conceptual design for the alternative selected identify the key	
	elements necessary to proceed with design development?	
	Does the conceptual design identify the overall project and facility	
	functional requirements in sufficient detail that the preliminary design	
	can be developed? (CD-3.1)	

ID #	Performance Objectives and Criteria <sup>2</sup>	Met?
	Does the conceptual design identify the system functional capabilities	
	necessary to achieve the overall project and facility functional	
	requirements? (CD-3.2)	
	Does the conceptual design identify the key interface subsystems to	
	achieve the overall project and facility functional requirements?	
	(CD-3.3)	
	Does the conceptual design identify the anticipated inputs to achieve	
	the overall project and facility functional requirements? (CD-3.4)	
	Does the conceptual design identify the expected outputs, including	
	waste streams, at an appropriate level to achieve the overall project	
Altorno	tivos Analysis	
	Does the alternatives analysis performed in support of the concentual design	
AA-1	meet the requirements and guidance of the applicable DOE Orders	
	Standards, and Manuals?	
	Has the alternative analysis been performed based on appropriate	
	applicable, and feasible technologies? (AA-1.1)	
	Does the alternatives analysis consider lifecycle costs, including	
	operations, maintenance, and disposal? (AA-1.2)	
	Does the alternatives analysis consider stakeholder values, reliability,	
	operability, maintainability, safety, technology development	
	requirements, project risks, and regulatory requirements? (AA-1.3)	
	Has the recommended alternative been selected based on a	
	systematic analysis of the benefits and costs? (AA-1.4)	
System	s Engineering and Value Management	
SE-1	Does the system engineering process adequately translate the mission	
	operational requirements into system architecture, performance parameters,	
	and design details?	
	Does the systems engineering process considered the requirements	
	analysis, alternatives analysis, and functional analyses and	
<b>SE 2</b>	Was the value management process implemented as required by Ederal	
3E-2	Acquisition Regulation part 48?	
	Does the value management system use a systematic process for	
	analyzing requirements and translating these into the most economical	
	means for providing essential functions without impairing essential	
	performance, reliability, guality, maintainability, and safety? (SE-2.1)	
<b>Risk Ar</b>	nalysis	
RA-1	Was a formal risk analysis/management process used to identify the project	
	risks associated with all of the alternatives evaluated?	
	Does the risk management process involve the IPT members and	
	external experts, as appropriate? (RA-1.1)	
	Are risks for each alterative clearly identified, and their consideration is	
	evident in the selection of the preferred alternative? (RA-1.2)	
Acquis	tion Strategy	
AS-1	Does the acquisition strategy address the key elements identified in the	
	DUE Orders and guidance documents?	
	Does the acquisition strategy identity the primary office of responsibility	
	for the project? (AS-1.1)	

ID #	Performance Objectives and Criteria <sup>2</sup>	Met?
	Does the acquisition strategy describe how the project fits within the	
	mission and identifies the mission need approval date and approving	
	official, and summarizes any material changes from the approved	
	mission need? (AS-1.2)	
	Does the acquisition strategy describe the key technical and	
	performance parameters for the project? (AS-1.3)	
	Does the acquisition strategy identify the projected total project cost,	
	expressed as a range? Does the total project cost include a profile	
	that distributes the cost by fiscal year? (AS-1.4)	
	Does the acquisition strategy identify applicable conditions and factors	
	that may affect the operational, design, or execution requirements?	
	(AS-1.5)	
	Does the acquisition strategy identify the major acquisition,	
	management, technical, cost, and schedule risks, and how handling	
	the risks influences the strategy? (AS-1.6)	
	Does the acquisition strategy discuss the approach to the acquisition,	
	including managing and executing the project? (AS-1.7)	
	Does the acquisition strategy discuss the methods of completion that	
	will be sought, promoted, and sustained throughout the course of the	
	project? (AS-1.8)	
	Does the acquisition strategy discuss the approach to managing the	
	project (AJ-1.9)	
	Does the acquisition strategy discuss the interfaces with other DOE	
	organizations, national laboratories, or outside stakeholders?	
	(AS-1.10)	