EXTERNAL INDEPENDENT REVIEW (EIR)

STANDARD OPERATING PROCEDURE (SOP)

DEPARTMENT OF ENERGY (DOE)

OFFICE OF ENGINEERING AND CONSTRUCTION MANAGEMENT (OECM)

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1.0   INTRODUCTION

DOE O 413.3A, *Project Management for the Acquisition of Capital Assets*, requires the Office of Engineering and Construction Management (OECM) to perform a Performance Baseline External Independent Review (EIR) for all capital asset and Major Item of Equipment (MIE) projects with a Total Project Cost (TPC) greater than or equal to $100 million (M) and for projects over $20M for program offices that have not established a Project Management Support Office (PMSO) capable of performing a review. For program offices with an established PMSO, the Acquisition Executive (AE) may request OECM to perform an EIR in lieu of an Independent Project Review for projects less than $100M.

The Performance Baseline EIR must be performed prior to approval of the project's Critical Decision-2 (CD-2)[1], Approve Performance Baseline. DOE O 413.3A also requires OECM to perform a Construction/Execution Readiness EIR for all Major System Acquisition (MSA) projects (i.e., projects with a TPC equal to or greater than $750M) prior to CD-3. DOE O 413.3A further requires OECM to perform an EIR for projects that have new performance baselines established as a result of a performance baseline deviation for line-item projects with a TPC greater than or equal to $100M. [Note: Attachment A discusses the process for EIRs for Environmental Management cleanup projects.]

When requested, OECM may also perform an EIR on projects
- to assist project teams develop comprehensive front-end planning prior to the Performance Baseline EIR (CD-2), and
- to assess performance during the execution stage and to assist the project team in recovering from unsatisfactory performance trends subsequent to CD-2 or CD-3.

This EIR Standard Operating Procedure (SOP) includes discussion of the EIR process, scope elements and lines of inquiry (LOI) (tailored based on the project scope, size, complexity, political sensitivity, dollar value, and other factors), corrective action plans (CAP), and OECM's Performance Baseline validation process. The objectives of this SOP are to clarify EIR expectations and to facilitate EIR planning and preparation by OECM and its EIR contractor as well as the DOE Program and project team

2.0   EIR PURPOSE

The purpose of an EIR conducted prior to CD-2 approval is to validate that the project can be executed to the proposed performance baseline (scope, cost, and schedule), and that the project is being planned and executed in compliance with DOE O 413.3A.

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[1] *CD-2 approval is required prior to requesting construction funds from Congress, including funds for full fabrication of Major Items of Equipment. On an exception basis, and in conformance with the budget process, Programs may request construction funds prior to CD-2 approval, but only with the approval of the Deputy Secretary or a designated representative. This CD-2 approval, which must be routed via OECM, the Office of Management, and the Chief Financial Officer, is good only for the current budget request, i.e., exception requests must be submitted every year regardless of previous approvals.*

Performance Baseline EIRs are mandated by Congress to ensure the validity of DOE's performance baselines prior to budget requests. They are more than just a review of cost and schedule. They validate that:

- Scope, cost, and schedule are firmly supported with sound underlying technical, economic, and programmatic bases, assumptions, and front-end planning;
- Design is mature enough to support definition and development of credible and sufficiently accurate cost and schedule baselines;
- The Federal Project Director (FPD) is certified at the appropriate level and is prepared to manage the project or program;
- An Integrated Project Team (IPT) with an appropriate complement of personnel having the requisite skill set, commitment, and effectiveness is in place and prepared to successfully execute the project;
- Appropriate management systems and processes are in place and functional;
- Relevant and comprehensive risk and contingency analyses and Risk Management Plans have been conducted by DOE and its contractor;
- An acceptable Project Execution Plan (PEP) has been completed, coordinated, and approved;
- The scope being designed reflects the mission need, functions and requirements;
- All required safety aspects have been satisfactorily addressed and documented by ensuring that appropriate safety inspections and reviews have been performed and requirements have been met[2];
- All NEPA requirements have been satisfied;
- Design reviews have been performed by qualified teams, and recommendations have been addressed by the design agent;
- Value Engineering analyses have been conducted, and cost-effective recommendations have been incorporated into the design; and
- The Acquisition Strategy and Plan are appropriate, support project delivery and will provide the best value to the Government.

EIRs provide assurance to the Programs and the appropriate AE (including the Deputy Secretary for MSA projects) that

- Project scope, cost, and schedule are valid;
- Project planning has progressed to a point where a performance baseline can be "locked-in" with an assurance that it will remain intact and stable through project completion;
- Project can be successfully managed and executed; and
- Construction dollars can be requested from Congress.

In accordance with the Contract and Project Management Root Cause Analysis Corrective Action Plan, a Project Definition Rating Index (PDRI) methodology will be used for projects with a Total Project Cost of $100M or greater, and a technology

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[2] A*n EIR is not a safety inspection or review required by DOE's safety directives, and should not evolve to that level of specific detail. Rather, DOE's Headquarters and field safety offices are responsible for performing safety inspections and reviews of projects and the associated documentation to ensure that the specific requirements are addressed completely and satisfactorily. The purpose of the EIR with respect to safety is to ensure that the required documents are available and have been appropriately reviewed, and that safety requirements are addressed/reflected in the technical scope/design and properly costed and scheduled in the proposed performance baseline. The EIR Team will document any safety deficiencies that they identify as a result of their review of safety documentation.*

readiness assessment methodology will be used for MSA projects to supplement the typical CD-2 EIR process. These methodologies will provide greater assurance that a consistent and sufficient level of front-end planning has occurred prior to establishing a project baseline.

For MSA projects, an EIR is conducted prior to approval of CD-3 (Approve Start of Construction). The purpose of this EIR is to assess the readiness for the start of construction and to reconfirm the completeness and accuracy of the performance baseline. In addition to many of the review elements for the CD-2 Performance Baseline review, the CD-3 EIR focuses on the final drawings, specifications, and construction/execution planning. Typically, OECM will conduct the CD-3 EIR prior to the release of the Request for Proposals or Invitation for Bid packages.

Finally, other EIRs may be requested by the Secretarial Acquisition Executive (SAE), AE, or by the Program. The purpose of these reviews is to
- evaluate project assumptions, assess project requirements;
- assess the risk analysis;
- assess the adequacy and operation of the IPT and the management of the project; and
- address any other issues defined during the EIR scoping process.

As an example, it may be appropriate to conduct a review in advance of a Performance Baseline review (particularly for MSAs) to serve as a pre-EIR—essentially, a readiness assessment to conduct a CD-2 EIR.

3.0   EIR BUDGETING AND PLANNING CYCLE

EIR funding must be sufficient to ensure a useful and effective EIR program. Accordingly, to meet out year funding projections, the assigned OECM project team member(s) should request the following from the Program/PMSO no later than March 30 of each year:
- The Program EIR projection comprising a listing of the projects that will require an EIR (or follow-up review) during the next fiscal year, the estimated TPC for those projects, and an estimated start date for conducting the respective EIR; and
- An out year projection (at least through the next budget planning year) listing the number of EIRs expected to be required with an estimated TPC for those out year projects.

OECM will use the Programs projections to develop estimated EIR funding requirements in its budget submission. EIRs for projects less than $100M will be funded by the Program requesting the review unless the Program does not have an established and capable PMSO. In addition, Programs will fund any previously unplanned EIRs.

OECM will plan, implement, and monitor contractual arrangements for all approved EIR services. NOTE: It is incumbent upon OECM and the Programs to ensure that the EIR projection listing remains current so that resources can be secured in an efficient and timely manner.

4.0   EIR PROCESS OVERVIEW

While the EIR process is a collaborative effort, OECM is responsible for coordinating all EIR activities with the EIR team. The overall objective should be the same as delineated within Section 2 of this SOP, the Purpose of EIRs. Ultimately, all matters requiring resolution will reside with OECM.

The Program should notify OECM at least 8 weeks prior to the desired start of the EIR on-site visit. This advance notice is required to ensure that an appropriate EIR is designed (tailored) specifically for the project at hand, and resources, including funding, are available and designated to cover the review.

4.1   EIR Scoping Meeting

Program and OECM representatives will conduct a Feds-only EIR scoping meeting to collaboratively define the scope of the EIR. OECM will chair the EIR scoping meeting, and attendance should include appropriate Program and project personnel, especially the designated FPD. Teleconferencing will be used for those unable to attend the meeting. Attachment B provides a recommended scoping meeting outline, which should be used to summarize the agreed-upon EIR scope elements, the required EIR team skill set, and whether a hybrid team will be chartered. If any core review elements are not to be addressed, the reasons should be identified in the scoping meeting notes.

4.2   EIR Team Selection and Staffing

Based on the agreed-upon EIR scope, the scoping meeting attendees will outline the required skills of the EIR team members and identify any special skills necessary, such as nuclear safety expertise for Hazard Category 1, 2, and 3 nuclear facilities. To fill these special skill sets, the Program may suggest individuals to augment the EIR team, as appropriate; suggested augmentees may reside within DOE—either as a Federal employee or a contracted employee (to include lab and/or M&O contract employees). If the EIR contractor team is to be augmented with DOE employees/contractors to enhance an EIR, then upon consensus among the attendees, a "hybrid EIR team" led by the EIR contractor can be chartered. To maintain the independence of the review, all Federal or contracted (M&O) personnel, included as augmentee members of an EIR team, must be independent (i.e., have no interest and/or equity) of the project to be reviewed.

After successful completion of the EIR scoping meeting, OECM will select the most suitable EIR contractor for the project. OECM, through its Contracting Officer's Representative, will authorize the EIR contractor to perform the EIR during the targeted time frame. OECM and the EIR contractor will discuss the need for special skills on the EIR team. Shortly thereafter, the EIR contractor will either propose external independent resources to fill the special skills gap, or they will contact and invite augmentee(s) suggested by OECM to the EIR team and quickly establish roles and responsibilities, consistent with the results of the EIR scoping meeting.

The EIR contractor will lead the EIR team in developing the Review Plan, executing the review, and drafting the EIR report. The EIR contractor will assign EIR responsibilities to the augmentee(s), who are expected to provide independent input to the EIR out

briefing and draft report in keeping with the schedule approved by OECM in the Review Plan. OECM will approve the final EIR team membership via its approval of the Review Plan.

4.3   Roles and Responsibilities

During the EIR process, roles and responsibilities should be clearly understood by all participants. In general, the following roles and responsibilities will apply:

Role	Responsibility
OECM Representative	Federal lead; facilitate the process; resolve issues
Program/FPD	Support process with resources, time, data, and personnel
EIR Contractor	Lead EIR team; write report; recommend validation
EIR Team "Augmentees"	Member of EIR team; provide input to Review Plan, out briefing, and draft report.

While not always possible, every effort should be made to clarify and resolve differing opinions. The OECM representative will take the lead to facilitate resolution. Ultimately, to maintain the external and independent nature of the review, the OECM EIR contractor is responsible for providing its independent Findings, Observations, and Recommendations, as well as an overall recommendation for (or against) validation of the proposed performance baseline (CD-2 EIR) or approval to start construction (CD-3 EIR). If differing opinions remain among the EIR team members, the divergent perspectives will be documented in the draft and final report, under an appropriate section inserted to capture these divergent views. The independence of the review must be maintained.

4.4   Project Documentation

After the EIR start date is contractually confirmed and the EIR contractor has been authorized to perform the review, the FPD and/or his contractor must send all relevant project documentation to OECM and the EIR team at least 4 weeks prior to the start date of the on-site review. The EIR process places a great deal of importance on having documents well in advance of the on-site review as it enables OECM and the EIR team to:

- determine the adequacy and completeness of the documentation, thus minimizing expenditure of EIR resources for on-site visits for which the Program, FPD, IPT and contractor are unprepared;
- develop specific EIR questions that will be the focus of the on-site portion of the EIR;
- inform the project team in advance of the on-site review of the review logistics and specific data and information needed to address EIR concerns related to the various review elements identified in the Review Plan; and
- perform reasonably comprehensive assessments without tying up site resources with lengthy on-site visits.

The EIR is a snapshot evaluation by the EIR team of the project status at a specific point in time; it is not a moving picture of project activities and status. The project team must provide a checklist of the submitted documentation and the preparation and/or approval date of each document along with the required documentation. If the project team intends

to transmit any additional documents or update any documents already submitted, they must notify OECM and the EIR team when project documentation is first submitted, noting this information on the documentation checklist.

If project documentation is submitted to OECM and the EIR contractor less than 4 weeks prior to the requested start date of the on-site review, OECM and the EIR team may recommend postponement of the scheduled EIR site visit start date. As a general rule, updates of project documentation will not be considered within 2 weeks of the on-site review, nor during the on-site review. Exceptions to this general rule will be handled on a case-by-case basis.

4.5   EIR Timeline

The typical process for conducting an EIR takes approximately 12 weeks from the time OECM and the EIR team receive the required project documents. This process is generically described below. (EIRs with limited scope should typically require less time to complete.) While the on-site EIR visit is usually limited to 1 week, the specific duration of the EIR depends on the size and complexity of the project or projects being reviewed. During the EIR, on-going project activities may continue.

- **Weeks 1-3.** Following receipt of all the required project documents, the EIR team develops a draft EIR Review Plan based on the results of the initial scoping meeting and a cursory review of the project documentation. OECM provides the project team and the PMSO (or Program support staff) a draft of the EIR Review Plan for review and comment. The project team, PMSO/Program, OECM, and the EIR team may participate in a telephonic or videoconference kickoff meeting to discuss the draft Review Plan. The project team and PMSO/Program may suggest additional review elements or LOIs. At the end of Week 3, the project team, PMSO, and/or Program comments are resolved or incorporated into the draft Review Plan.

- **Week 4.** The EIR team finalizes the EIR Review Plan and provides it to OECM for approval and distribution to the PMSO, Program, and project team. The project team and PMSO/Program reviews the approved final Review Plan and prepares for the EIR site visit. The final Review Plan may be accompanied (or possibly in a separate transmittal) by specific EIR questions that must be addressed before or during the on-site review. Transmittal of the EIR questions prior to the on-site portion of the review enables the Program and project team to assemble the additional data and information (project documentation not previously provided to OECM and the EIR team) needed to answer these questions and address the EIR scope and associated LOIs. Providing complete, understandable answers to the specific EIR questions prior to the on-site review expedites the entire review process and maximizes the effectiveness of the limited time available during the on-site review.

- **Week 5.** The EIR team conducts the on-site review, and concludes with an out brief to the PMSO/Program and project team. In the out briefing, the EIR team should identify (to the extent practical) issues that will likely result in finding(s) that will require satisfactory resolution prior to the EIR team being able to

recommend validation of the proposed performance baseline (CD-2) or to proceed with construction/execution(CD-3). These preliminary indications of findings presented during the out briefing may change as the EIR team further analyzes the review results, discusses issues amongst themselves, and writes the draft report. *Note: Ideally, the OECM representative accompanies the EIR team to facilitate the process, kick off the in (and out) briefings, serve as an observer to gain a better understanding of the project, and assist with issue resolution. The PMSO/Program is encouraged to arrange for a teleconference/video connection to the site out briefing when physical attendance is not possible.*

- **Weeks 6-8.** The EIR team members review their respective notes and any additional documentation gathered during the on-site review, clarify information as necessary with the project team and fellow team members, and develop their inputs to the draft EIR report. No later than the end of the eighth week. the EIR contractor provides an electronic copy of the draft EIR report to OECM, who then issues the draft report electronically to the PMSO/Program and project team for a factual accuracy review.

- **Week 9.** No later than the end of the ninth week, the PMSO/Program and project team provide a consolidated list of factual accuracy comments to OECM, who then forwards them to the EIR team for consideration in revising the EIR report. The PMSO/Program and project team should strictly limit comments to the factual content of the draft EIR report. If necessary, a teleconference may be conducted between the EIR team and project team to resolve factual accuracy comments. The PMSO or Program may request OECM to set up a resolution conference, as appropriate, to discuss findings, observations, recommendations, or other unresolved issues they have with the draft report. The PMSO or Program must contact OECM no later than 1 week after receipt of the draft report to coordinate this effort. Any disagreements with specific findings, observations, or recommendations should be transmitted to OECM along with supporting back-up documentation and a request to schedule a resolution conference. The Program/PMSO and project team are encouraged to discuss these issues of contention regarding the draft EIR report at this forum and not as part of the factual accuracy submittal.

- **Week 10.** The EIR contractor addresses the factual accuracy comments and submits an electronic pre-final EIR report to OECM. OECM coordinates a Pre-Final Management Brief date/time for resolution of EIR report comments and issues with the EIR team and appropriate PMSO/Program and project team leadership and provides them a copy of the pre-final EIR report.

- **Week 11.** OECM hosts the Pre-Final Management Brief (given by the EIR team leader) and comment/issue resolution conference. The Pre-Final Management Brief is intended for senior Program and project team management, as well as program/project personnel. The Director of OECM, or designee, will attend the Pre-Final Management Brief for all MSA projects, and may attend similar sessions for other projects as the schedule permits.

- **Week 12.** The EIR team resolves comments/issues as agreed to during the Pre-Final Management Brief and resolution conference, and issues the final EIR Report with a validation recommendation and/or recommended corrective actions to OECM. OECM then forwards the final EIR Report to the PMSO/Program and project team.

5.0 EIR IN SUPPORT OF CD-2

Below is a discussion of 21 core elements that will generally form the scope of the CD-2 Performance Baseline EIR, as well as the required documentation for this review. Additional elements or LOIs beyond those presented in this document may be included in the scope of the Performance Baseline EIR based on unique aspects of the project being reviewed and decisions reached during the scoping meeting. Both the EIR scope and required documentation may vary depending on the type of project and any tailoring that may be applied to the EIR. On a project-by-project basis, one or more of the core elements may be deleted from the review while others areas may be added to the EIR. The focus areas will vary with each project.

5.1   Scope of Review

The following are the normal elements and standard LOIs that an EIR team should address. Elements may be added or deleted during the EIR scoping process, and LOIs will be further clarified and documented in the Review Plan.

1.0   Basis of Scope (As defined in the Work Breakdown Structure, System Functions and Requirements)
- Assess whether the Work Breakdown Structure (WBS) and WBS dictionary incorporate all project work scope, and that the defined work scope and system requirements are derived from and consistent with the approved Mission Need.
- Assess whether the Resource Loaded Schedule (RLS) is consistent with the WBS for the project work scope.
- Assess if the WBS represents a reasonable breakdown of the project work scope and if it is effective for internal management control and reporting.
- Identify and assess the basis for and reasonableness of key programmatic, economic, and project scope assumptions as related to the quality and completeness of the WBS, technical and design requirements, and risk management planning and contingency requirements. Identify all underlying technical assumptions and assess whether they are sound and/or appropriately addressed within the Risk Management Plan and adequately supported with funded contingency, particularly for new technologies that have never been developed and/or prototyped within the proposed environment.
- Assess whether it is reasonable to divide the work scope presented into more than one discrete project. If applicable, identify the basis for managing such discrete projects in an integrated program.
- Confirm that a Program Requirements Document (PRD) exists and that project planning reflects the PRD.

- Assess whether "design-to" functions are complete and have a sound technical basis (The EIR team should include safety and external requirements, such as permits, licenses, and regulatory approvals, in their assessment.)
- Assess whether the requirements have been defined well enough to establish a firm performance baseline.
- Assess whether the CD-4 (project completion) activities and requirements and project key performance parameters (KPP) are clearly defined in the PRD. Assess whether these activities and requirements are sufficiently defined, under change control and not expected to change, quantified, measurable, and can reasonably be determined as complete. Identify the CD-4 requirements/activities/KPPs in a separate table in the EIR report, including summary analysis results.
- Assess adequacy and completeness of standards and requirements to include DOE Directives (e.g., Policies, Orders, Standards, and Guides to include DOE O 413.3A, DOE-STD-1189, etc.) identified as being applicable and appropriate to the project either due to the nature of the project or contract requirements. Identify any areas of non compliance with the identified standards and requirements.

2.0   Basis of Cost (As defined in the Resource Loaded Schedule)
- For selected WBS elements (typically, those constituting significant cost and/or risk), summarize the detailed basis for the cost estimate.
- Assess the method of estimation and the strengths/weaknesses of the estimates for each WBS element reviewed.
- Identify and assess the basis for and reasonableness of key programmatic, economic and project cost assumptions as related to the quality of estimates for each WBS element, and risk management planning and contingency requirements.
- Perform Independent Cost Review (ICR) or Independent Cost Estimate (ICE) as appropriate or requested. For MSA projects, the ICR or ICE required by DOE O 413.3A will be coordinated with the Office of Cost Analysis (CF-70)
- Assess the amount of and basis for escalation.
- Assess reasonableness of resource loading, including what resources are loaded.
- Identify whether the estimated costs for the project are reasonable based on professional expertise, parametric estimates, historical data, etc.
- Verify that the cost value of schedule contingency is included in the TPC
- Provide a completed project cost profile table (see template in Appendix C – Excel worksheet will be provided as part of the EIR Statement of Work).
- Based on the project cost profile table, develop summary baseline cost tables of the proposed costs (i.e., PED, TEC, OPC, TPC, PMB, MR, Fee, DOE Direct Costs, and Contingency) for the EIR report (examples below).

Table 1 – Project Data Sheet Cost Breakdown – Funding Source Specific

Description	FY06	FY07	FY08	FY09	FY10	FY11	FY12	Total
PED								
Construction								
TEC								
OPC								
TPC								

Table 2– Project Data Sheet Cost Breakdown – Funding Source Specific

Description	Costs to Date (as of _____)	Costs to Go	Total
PED			
Construction			
TEC			
OPC			
TPC			

Table 3 – Earned Value Management System Breakdown – Funding Source Neutral

Description	FY06	FY07	FY08	FY09	FY10	FY11	FY12	Total
PMB								
MR								
Fee/Profit								
Other DOE Direct Costs								
Contingency								
Performance baseline (TPC)								

Table 4– Earned Value Management System Breakdown – Funding Source Neutral

Description	Costs to Date (as of _____)	Costs to Go	Total
PMB			
MR			
Fee/Profit			
Other DOE Direct Costs			
Contingency			
Performance baseline (TPC)			

3.0 Basis of Schedule (As Defined in the RLS)

- For the selected WBS elements, summarize the detailed basis of schedule estimate.
- Assess the method of estimation and the strengths/weaknesses of estimates.
- Identify and assess the basis for and reasonableness of key programmatic, economic and project schedule assumptions as related to the quality of estimates for each WBS element, and risk management planning and contingency requirements.
- Assess reasonableness of resource loading, including what resources are loaded.
- Determine if schedule contingency is derived quantitatively and if the calculated duration is placed between the end of the last project critical path activity and the "Submit Request for CD-4" milestone.
- Identify whether the estimated schedule for the project is reasonable based on professional expertise, parametric estimates, historical data, etc.
- Include CD milestone data on the project cost profile table referenced above and include summary baseline schedule tables of the proposed

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milestones (i.e., CD dates and other significant or critical project dates) in the EIR report.

4.0   Funding Profile and Budget
- Review and provide the basis for the Funding Profile (e.g., latest Project Data Sheet).
- Compare the annual budget with the cost requirements, and provide an assessment of whether the costs and budget are reasonably linked and can withstand normal budget turbulence during fiscal year transition periods (e.g., continuing resolutions, new start restrictions, etc.)
- Identify any significant disconnects between the performance baseline requirements and budget/out-year funding. Determine the reasonableness of the Budget Authority versus Budget Obligation profiles and assess the affordability of the project within the Program's budget profile.
- Include budget/funding information in the project cost profile table referenced above.

5.0   Critical Path
- Assess whether the Critical Path is reasonably defined. Assess whether the Critical Path reflects an integrated schedule and schedule durations are reasonable.
- Provide the duration between the Critical Path completion date and the Project Completion date (CD-4). Assess whether the schedule contingency (float) is reasonable for this type of project.
- Determine if there is a clearly defined critical path leading to submission of the CD-4 request.
- Assess the critical path schedule for level of effort activities.
- Verify that "near critical paths" are clearly identified.

6.0   Risk and Contingency Management
- Describe the approach used to identify project risks and assess the adequacy of this approach.
- Assess adequacy and completeness of both DOE and contractor risk management planning including the method(s) used to identify risks, and whether a reasonably complete list of potential risks was developed for analysis.
    - List key risks (e.g., programmatic, economic, those resulting from assumptions, technical, including those associated with use of critical technologies, etc.) and risk rankings in a table, and provide the EIR team's assessment of the risk.
- Assess whether all appropriate risk handling and mitigation actions, including accepted risks and residual risks, have been incorporated into the performance baseline.
- Identify and assess cost and schedule contingency (both contractor and DOE).
    - Provide an assessment of whether the analysis for and basis of contingency is reasonable for this type of project and its associated risks.

- - Ensure contingency analysis and allowances are tied to risk assessments.
  - Ensure contingency accounts for estimate uncertainty, which is directly tied to design maturity and the estimating methodologies used.
- Assess adequacy of the qualitative analysis and rating (high, medium, or low) of current risks (including site specific factors such as availability of contractors) for probability of occurrence and for consequence of occurrence.
- Evaluate the extent and adequacy of quantitative risk analysis.
- Evaluate whether the risk watch list and risk assessment sheets appear to be complete.
- Evaluate the adequacy of the management control process for risk status/updating.

7.0 Hazards Analysis/Safety

(Note: For non-nuclear facility project reviews, LOIs applicable to Hazard Category 1, 2, and 3 nuclear facilities will not be included in the EIR scope.)

- Assess whether the hazards identified and the accident scenarios represent a reasonably comprehensive list. Determine if controls are capable of mitigating defined accidents and if confinement/containment of radioactive material is addressed.
- Assess expectations for facility level systems, structures, and components (SSC). Determine whether SSCs for worker and public safety, and safety class/safety significant (SC/SS) equipment and components, have been incorporated into the design and proposed performance baseline.
- Review the Integrated Safety Management System and assess whether safety has been appropriately addressed throughout the lifecycle of the project.
- Assess the relevant change control process relative to required documentation and necessary SSCs.
- Assess the Hazards Analysis (HA) process, including the use of internal and external safety reviews.
- As applicable, review any Defense Nuclear Facilities Safety Board (DNFSB) and/or Nuclear Regulatory Commission (NRC) interface and discuss with the local representatives the status of their involvement. Assess whether DNFSB/NRC issues have been reasonably considered and addressed. If not, identify the outstanding issues, assess when they will be resolved and determine what risks they pose.
- Assess status of and resolution of corrective actions by the contractor, including incorporation of any additional identified safety requirements.
- Identify if the HA incorporates expectations from the Safety Design Strategy (SDS).
- Review the Preliminary Safety Design Report (PSDR), SDS, and Fire Hazards Analysis (FHA). Assess whether these documents are complementary, reflect continuously refined analyses based on evolving design and safety integration activities during preliminary design, address all required elements in accord with DOE-STD-1189, and have been evaluated by appropriate individuals and organizations.

- Assess whether the SDS addresses the following three main attributes of safety integration as the project progresses through project planning and execution:
    - The guiding philosophies or assumptions to be used to develop the design;
    - The safety-in-design and safety goal considerations for the project;
    - The approach to developing the overall safety basis for the project.
- Ensure a Preliminary Safety Validation Report (PSVR) has been completed:
- Assess whether it adequately addresses the required review of the PSDR or Preliminary Documented Safety Analysis (PDSA).

8.0 Basis of Design
- Review the basis of design and assess the reasonableness of the design requirements and output for each function/operation. Summarize the assessment by providing a description of the unit operation, the design parameters, the basis of the design parameters and an assessment of whether the design basis is reasonable.
- Ensure safety requirements resulting from review of safety documents (e.g., PSDR and PSVR) are incorporated into the design and baseline.
- Review surrogate tests, as applicable, and provide an assessment of whether surrogate composition reasonably represents the full range of feed streams and whether the design basis incorporates results of the tests.
- Review process and material balance flow sheets to assess the reasonableness of the input and output parameters for each unit operation, and adequacy to support environmental permitting, licensing and other regulatory decisions.
- Ensure that the design addresses results of reliability, availability, maintainability, and inspectability (RAMI) analyses.

9.0 Preliminary Design Review and Comment Disposition
- Assess whether the design has progressed far enough (design maturity) to support the proposed performance baseline.
- Confirm that a design review has been performed by a qualified team, to ensure the adequacy of the preliminary design including adequacy of the drawings and specifications, and assess whether they are consistent with system functions, requirements, and KPPs.
    - Review the disciplines and experience of the project design review team. Provide an assessment of whether the design review team had appropriate experience and technical disciplines on the team.
- Review the design review comments and responses. Based on a reasonable sample, assess whether these comments have been incorporated into the design, and whether the costs and schedule associated with design changes have been incorporated into the performance baseline.

10.0 Start-Up Planning and Operations Readiness
- Ensure the start-up test plan identifies how tests will be determined to be successful, and that associated equipment and instrumentation has been included in the preliminary design.

- Review the startup and operational readiness test requirements and plans and assess whether they represent:
    - The acceptance and operational system tests required to demonstrate that the system meets design performance specifications, safety requirements, and KPPs, and
    - Sufficient scope definition to enable reasonable estimates of cost, schedule, and resources.
    - Ensure traceability of functional, operational, and safety requirements into the start-up test plan.
- Determine any exceptions taken by potential construction contractor or project consultants in meeting startup test specifications.
- Assess whether cost, time and resource estimates are defensible to accomplish the required startup activities and have been included in the performance baseline.
- Assess whether there is sufficient cost and schedule contingency for test and equipment failure during start-up testing.
- Assess whether the start-up plan has been fully integrated with existing functional organizations including security.
- Assess whether results of tests (e.g., equipment tests, process tests, surrogate tests, etc.) have been factored into startup and operational readiness planning.

11.0   Project Controls/Earned Value Management System
(Note: The EIR Team review of a contractor's Earned Value Management System (EVMS) does not constitute an EVMS Certification Review or Surveillance Review, unless made part of the EIR scope during the scoping meeting.)
- Assess the status of the contractor's project control system to include the EVMS relative to the requirements of the contract and DOE O 413.3A.
- Assess whether project control systems and reports are being used to report project performance, whether the data is being analyzed by the Federal IPT and contractor management, and that management action is taking place as an outcome of the analysis function.
- Evaluate the control process whereby projects incorporate formal changes, conduct internal re-planning, and adjust present and future information to accommodate changes. Determine if changes, including acceptable retroactive changes (correcting errors, routine accounting adjustments, or improving accuracy of the performance measurement data), are documented, justified, and explained.
- If the project contractor has a certified EVMS, assess whether a surveillance system is in place to maintain the system for continued compliance with the American National Standards Institute (ANSI) Standard (ANSI/EIA-748).
    - Review the contractor's EVMS system/project control description.
    - Assess the contractor's surveillance program.
- If the project contractor does not have a certified EVMS, assess the likelihood of the EVMS being certified by CD-2, and no later than CD-3.
    - Determine if there is an EVMS certification review scheduled to occur within sufficient time to permit EVMS certification, and

assess the status of efforts and management focus on ensuring the EVMS is ready for certification review.

- If a certification review is in process, assess the status of efforts and management focus on resolving open issues to obtain certification within sufficient time preceding the baseline Critical Decision dates.

12.0   Quality Control/Assurance

- Assess the applicability, completeness, adequacy, and flow-down of the Project Quality Assurance Program, including software quality assurance (SQA), based on DOE Order 414.1C and 10 CFR 830 Subpart A.
- Review the record of QA audits performed on the project and the disposition of the audit findings.
- Determine if the QA/QC Plan and implementing procedures address personnel training and qualifications, quality improvement programs, document and record management, work processes, receipt inspection, commercial grade dedication, management and independent assessments, acceptance test planning and implementation, and the process for dispositioning field changes. Assure that the contractor QA/QC Plan addressing the scope and content for the CD-2 phase of the project has been reviewed and approved by the appropriate DOE organization.
- Determine if there are QA/QC requirements for construction planning and work processes.
- Assess whether QA requirements (NQA-1 if applicable) have been appropriately incorporated into the "Design-to" functions, and costs, time and resources adequately estimated and included in the baseline.

13.0   Value Management/Engineering

- Assess the applicability of Value Management/Engineering and if a Value Management/Engineering analysis has been performed with results being incorporated into the proposed performance baseline.
- Provide an assessment of the Value Management/Engineering process for this project. Include whether the VM team had a reasonable skill mix and experience background.
- Assess whether life cycle cost analysis was reasonably performed as part of the trade-off studies and various alternatives reviewed.

14.0   Project Execution

- Review the Project Execution Plan (PEP) and determine if it establishes a plan for successful execution of the project, if the project is being managed and executed in accordance with the PEP, and if it is consistent with other project documents. Determine if the PEP has been reviewed by appropriate site and Headquarters' organizations, and if all comments have been resolved.
- Determine if there is a program for integrated regulatory oversight and assess if applicable Federal, state, and local government permits, licenses, and regulatory approvals, including strategies and requirements necessary to construct and operate a facility or to initiate and perform project activities are identified and will be obtained when needed to continue

project execution on schedule or milestone dates established. Identify if schedule for receipt of authorization from regulators is realistic and based on experience, and that requirements and milestone dates are updated as necessary and kept current.

- Assess key inter-site and intra-site coordination issues and determine if they are identified, addressed and resolved or appropriate plans in place to accomplish resolution.
- Determine if all stakeholders are identified, and assess if their relationship to the project is evaluated, project impacts on them and their interests identified, and required interfaces with external organizations or authorities addressed.
- Determine if an appropriate Public Participation Plan is in place based on available stakeholder information and size and scope of project, and if specific stakeholder group issues are addressed relative to project goals and objectives, technical issues, project risk, and environmental strategies.
- Identify applicable GAO, IG, and other oversight body reports and determine if issues or concerns have been resolved or otherwise adequately addressed. Similarly, identify and assess relevant Congressional language in authorization and appropriation bills.

15.0 Acquisition Strategy/Plan
- Review the Acquisition Strategy/Plan to determine if a strategy/plan for successful execution of the project is established, if the project is being executed in accordance with the strategy/plan, and it is consistent with other project documentation.
- Assess whether there are adequate contractor incentives (and disincentives) to enhance project execution.
- Evaluate any changes from previously approved Acquisition Strategies/Plans and assess whether the current Strategy/Plan still represents best value to the Government.

16.0 Integrated Project Team
- Review Federal and contractor IPT Charters and determine if all appropriate disciplines are included.
- Confirm that the FPD is certified at the appropriate level to manage this project.
- Assess both Federal and contractor project management staffing in terms of number of personnel, skill set, effectiveness, quality, organizational structure, division of roles/responsibilities, and processes for assigning work and measuring performance. (Differentiate between full and part-time IPT members.)
- Assess whether the Federal and contractor project teams can successfully execute the project.
- Ensure IPT membership includes appropriate safety experts. Identify if the Federal IPT nuclear safety expert is validated as qualified by the Chief of Nuclear Safety/Chief of Defense Nuclear Safety in accord with DOE O 413.3A.
- Assess the span of control (in terms of not only supervisory responsibility but also management of dollars and project issues) of key project

management personnel, including the FPD, to determine whether they can successfully perform their duties.

- Identify any deficiencies in the Federal or contractor IPTs that could hinder successful execution of the project.

17.0 Sustainable Design
- Assess whether the project team has identified sustainable design features, in accordance with the Energy Policy Act of 2005, Executive Order 13423, and DOE O 450.1 chg 3, and that these features have been properly accounted for within the proposed performance baseline.
- Assess whether the project is eligible for LEED certification.

18.0 Safeguards and Security
- Assess whether a Preliminary Security Vulnerability Assessment Report as defined in DOE M 470.4-1 has been updated as required by DOE O 413.3A.
- Assess the completeness and accuracy of the applicable safeguards and security requirements, the methods selected to satisfy those requirements, and any potential risk acceptance issues applied to the project and their incorporation into the project.
- Assess adequacy of incorporation of Design Basis Threat requirements into the baseline.
- Review the proposed performance baseline to ensure that cost, schedule, and integration aspects of safeguards and security are appropriately addressed.
- Assess whether all feasible risk mitigation has been identified and that the safeguards and security concerns for which explicit line management risk acceptance will be required are appropriately supported.

19.0 New Technology and Technology Readiness
- Review all technology decisions that have been made to date and determine whether the project is incorporating new technologies or existing technologies in new applications.
- Assess the plans for and results of tests of new technologies or new applications of existing technology. Determine if the scale of the test is adequate to mitigate risks and/or safety concerns.
- Assess whether the identified technologies are at a sufficient level of maturity to be incorporated into the design and baseline. To the extent possible, provide an analysis of the Technology Readiness Level (TRL) for the applicable technologies identified [Government Accountability Office Report 07-336 Major Construction Projects Need a Consistent Approach for Assessing Technology Readiness to Help Avoid Cost Increases and Delays, March 2007]
- Assess whether the proposed performance baseline adequately provides for sufficient cost and schedule to accomplish required research, development, testing, and implementation of these new technologies or new applications of existing technologies.

- Determine if the Risk Management Plan accounts for risks associated with new technologies or new applications of existing technologies, and that adequate contingency has been included.

20.0 Contract Management
- Assess the current contract including cost, schedule, and work scope against the proposed performance baseline and identify any potential contract and project integration issues.
  - Determine whether the terms of the current contract support the project as currently planned and identify any gaps between the current contract and proposed performance baseline.
  - Assess effectiveness of integrated change control and use of change control boards by both Federal and contractor organizations.
- Likewise, assess any planned contract modifications and requests for equitable adjustments relative to the proposed performance baseline.
- Evaluate the status of contract management, and if applicable, plans and schedule to bring the contract up to date.
- Assess project plans to self-perform construction and operations readiness versus subcontracting that work.
- Assess draft documents to be provided to the services (e.g., construction) and product (e.g., purchased materials and equipment) subcontractors including submittal of documents by the subcontractors required before notice to proceed (e.g., design requirements, EVMS, and systems testing and turnover requirements).

21.0 Documentation and Incorporation of Lessons Learned
(Note: This element is based not only on good management practice, but the future CD-4 requirement to produce a lessons learned document.)
- Assess whether the project team is documenting and sharing lessons learned from their project internally and externally.
- Assess whether the project team is reviewing and incorporating lessons learned from this and other projects.

5.2   Required Documentation for the Performance Baseline EIR

In general, the following documents (or equivalents) are normally required for the CD-2 Performance Baseline EIR. Other associated material may be requested by OECM and the EIR team to ensure a complete and accurate review is performed.

- CD-0 Documents (e.g., Mission Need Statement, Approval of Mission Need)
- CD-1 Documents (e.g., Approval of Alternative Selection and Cost Range)
- Work Breakdown Structure (WBS) and WBS Dictionary
- Detailed Resource Loaded Schedule
- Detailed Cost and Schedule Estimates, including Bases of Estimate and assumptions
- Program Requirements Document (or equivalent)
- Critical Path and Near-Critical Path Schedules

- System Functions and Requirements Document (also referred to as the "Design-to" requirements or Design Criteria)
- Results of and Responses to Project Design Reviews and Technical Independent Project Reviews
- Design documents including drawings, specifications and design lists
- Design Review Report
- Design Review Team resumes
- Response to Design Review Comments
- Conceptual Design Report
- Project Execution/Management Plans
- Preliminary Construction Execution/Management Plans
- Integrated Project Team Charter (assignment letters as appropriate)
- Documented IPT Processes
- FPD Certification status and Integrated Project Team qualifications (resumes as appropriate)
- Start-up Test Plan and other operations readiness plans (as appropriate)
- Hazards Analysis/Hazard Analysis Report
- DNFSB and NRC Reports and correspondence
- Responses to DNFSB and NRC reports
- Preliminary Safety Design Report (Hazard Category 1, 2, or 3 nuclear facilities)
- Preliminary Security Vulnerability Assessment Report
- Preliminary Safety Validation Report (Hazard Category 1, 2, or 3 nuclear facilities)
- National Environmental Policy Act documentation
- Risk Management Plan/Process
- Risk Watch List
- Risk Assessment
- Contingency/Monte Carlo Analyses and Contingency Plan
- Acquisition Strategy/Acquisition Plan
- Value Management/Engineering Report
- Quality Control/Assurance Plan
- Interface Documentation (procedures, MOU/MOA with site M&O)
- Reports and CAPs from previous internal and external project reviews (if applicable)
- Project Control System description
- Change Control Process
- Monthly and Quarterly Progress reports for past year
- Contracts applicable to the project
- Contract Management Plan
- Pending contract modifications/Requests for Equitable Adjustment
- Project Data Sheets
- Project Funding Profile (Program budget/planning office should identify if this profile is within the Program target budget profile)

6.0 EIR IN SUPPORT OF CD–3

The purpose of the Construction or Execution Readiness (CD-3) EIR is to assess the readiness for construction or execution and to confirm the completeness and accuracy of the performance baseline. The EIR scope in support of CD-3 has several elements specific to construction readiness, but retains many of the elements contained in the CD-2 Performance Baseline review. Below is a discussion of 19 core elements that will generally form the scope of the CD-3 Construction or Execution Readiness EIR, as well as the required documentation for this review. Additional elements or LOIs beyond those presented in this document may be included in the scope of the CD-3 EIR based on unique aspects of the project being reviewed.

Both the scope and required documentation may vary for specific projects depending on the type of project and any tailoring that may be applied to the EIR. On a project-by-project basis, one or more of the core elements may be deleted from the review while others areas may be added. The focus areas may also vary if partial CD-3 phases (e.g., CD-3A, CD-3B) for long-lead procurements or early site work are being reviewed and approved in advance of the complete CD-3 EIR. In addition, if the project is requesting a CD-3A at the time of CD-2, applicable elements and LOIs from the following list should be included in the scope and Review Plan for a combined CD-2/CD-3A EIR.

6.1   Scope of Review

The following are the normal elements and standard LOIs that an EIR team should address. Elements may be added or deleted during the EIR scoping process, and LOIs will be further clarified and documented in the Review Plan.

1.0   Basis of Scope (As Defined in Work Breakdown Structure, Final Drawings and Specifications, Final Design Functions and Requirements, and Site Final Design Review)
   - Identify the source and reason for any proposed changes to the project mission need, scope, or WBS since CD-2. Assess the basis and justification for these changes.
   - Identify and assess any changes to the basis for and reasonableness of key programmatic, economic and project scope assumptions as related to the quality and completeness of the WBS, technical and design requirements, and risk management planning and contingency requirements since CD-2.
   - Identify any changes to the CD-4 (project completion) activities and requirements and project KPPs since CD-2. Assess the basis and justification for any changes.
   - Assess completeness and quality of drawings and design specifications. Review selected construction elements or systems, including the key project elements posing the more difficult construction challenges.
   - Assess whether bid packages are sufficiently clear and well-defined as to be ready for bid.
   - Assess whether all final design functions and requirements are reflected in the approved performance baseline, including safety SSCs and external requirements, such as permits, licenses, and regulatory approvals.

- Assess whether all required changes from the Site Final Design Review are incorporated into the approved performance baseline, and assess whether the technical scope elements of the approved performance baseline remain consistent with that approved at CD-2. Assess the basis and justification for any scope changes since CD-2.

2.0   Basis of Cost and Schedule (As defined in the RLS)
- Identify the source and reason for any proposed substantive changes to the RLS since CD-2 relative to its consistency with the approved performance baseline (TPC, CD-4 completion schedule). Assess the basis and justification for these changes.
- For selected WBS elements (typically, those constituting significant cost, schedule and/or risk), summarize the detailed basis for the cost or schedule estimate. Identify strengths/weaknesses of the estimates reviewed.
- Identify and assess any changes since CD-2 to the basis for and reasonableness of key programmatic, economic, and project cost assumptions as related to the quality of estimates, and risk management planning and contingency requirements.
- Identify the amount of and basis for escalation. Assess the basis and justification any changes since CD-2.
- Assess basis of resource loading, including what resources are loaded. Determine if resource requirements factor in project performance since CD-2 or performance of other similar projects in execution.
- Provide an updated project cost profile table (see template in Appendix C – Excel worksheet will be provided as part of the EIR Statement of Work).
- Based on the project cost profile table, develop summary baseline cost tables (i.e., PED, TEC, OPC, TPC, PMB, MR, Fee, DOE Direct Costs, and Contingency) and schedule tables of the proposed milestones (i.e., Critical Decision dates and other significant or critical project dates) for the EIR report (examples below). Identify and assess the basis and justification for any changes to the TPC and CD-4 schedule since CD-2.

Table 1 – Project Data Sheet Cost Breakdown – Funding Source Specific

Description	FY06	FY07	FY08	FY09	FY10	FY11	FY12	Total
PED								
Construction								
TEC								
OPC								
TPC								

Table 2– Project Data Sheet Cost Breakdown – Funding Source Specific

Description	Costs to Date (as of _____)	Costs to Go	Total
PED			
Construction			
TEC			
OPC			
TPC			

Table 3 – Earned Value Management System Breakdown – Funding Source Neutral

Description	FY06	FY07	FY08	FY09	FY10	FY11	FY12	Total
PMB								
MR								
Fee/Profit								
Other DOE Direct Costs								
Contingency								
Performance baseline (TPC)								

Table 4– Earned Value Management System Breakdown – Funding Source Neutral

Description	Costs to Date (as of _____)	Costs to Go	Total
PMB			
MR			
Fee/Profit			
Other DOE Direct Costs			
Contingency			
Performance baseline (TPC)			

3.0 Construction/Execution Planning

- Assess adequacy of construction/execution planning.
  - Review the adequacy of constructability reviews to assess whether construction documents have been reviewed for accuracy, completeness, and systems coordination issues.
  - Assess status of logistics including interface with operating facilities and maintenance organizations, infrastructure interfaces, adequacy of lay-down areas, temporary construction facilities, security and badging readiness, and other logistical elements.
  - Identify potential coordination issues, missed details, time delays, potential liability, or inter-contractor coordination items.
- Assess adequacy of the Federal IPT, Site M&O/Prime Contractor, and/or Construction Management Organization (as applicable), and construction contractor staffing for construction execution to ensure adequate oversight of the work, including safety, performance, and quality.
  - Determine oversight and management of the construction contractor by IPT and site prime contractor.

4.0 Funding Profile and Budget

- Review and provide the basis for the Funding Profile (e.g. latest Project Data Sheet). Assess the basis and justification for any changes since CD-2.
- Compare the annual budget with the cost requirements, and provide an assessment of whether the costs and budget are reasonably linked and can withstand normal budget turbulence during fiscal year transition periods (e.g., continuing resolutions, new start restrictions, etc.).
- Identify any significant disconnects between the performance baseline requirements and budget/out-year funding. Determine the reasonableness of the Budget Authority versus Budget Obligation profiles and asses the affordability of the project within the Program's budget profile.
- Include budget/funding information in the project cost profile table referenced above.

5.0 Critical Path

- Assess whether the Critical Path is reasonably defined. Identify any changes since CD-2.
- Assess the RLS relative to the Critical Path and identify whether the Critical Path reflects an integrated schedule and schedule durations are reasonable.
- Provide the duration between the Critical Path completion date and the Project Completion date (CD-4). Assess whether the schedule contingency (float) is reasonable for this type of project.
- Determine if there is a clearly defined critical path leading to submission of the CD-4 request.
- Assess the critical path schedule for level of effort activities.
- Verify that "near-critical paths" are clearly identified.

6.0 Hazards Analysis/Safety

(Note: For non-nuclear facility project reviews, LOIs applicable to Hazard Category 1, 2, and 3 nuclear facilities will not be included in the EIR scope.)

- Identify changes to the hazards analysis and safety basis since CD-2. Assess whether these changes are reflected in the approved performance baseline scope, cost, and schedule.
- Assess the Hazard Analysis (HA) process, including the use of internal and external safety reviews.
- As applicable, review any DNFSB and/or NRC interface and discuss with the local representatives the status of their involvement. Assess whether DNFSB/NRC issues have been reasonably considered and addressed. If not, identify the outstanding issues, assess when they will be resolved and determine what risks they pose.
- Review the Integrated Safety Management System and assess whether safety has been appropriately addressed throughout the lifecycle of the project.
- Assess whether the hazards identified and the accident scenarios represent a reasonably comprehensive list. Determine if controls are capable of mitigating defined accidents and if confinement/containment of radioactive material is addressed.
- Assess expectations for facility and system level systems, structures, and components (SSC). Determine whether SSCs for worker and public safety, and safety class/safety significant (SC/SS) equipment and components, have been incorporated into the design and approved performance baseline.
- Assess the relevant change control process relative to required documentation and necessary SSCs.
- Assess status of and resolution of corrective actions by the contractor, including incorporation of any additional identified safety requirements.
- Identify if the HA incorporates expectations from the Safety Design Strategy (SDS).
- Review the Preliminary Documented Safety Analysis (PDSA) and SDS. Assess whether these documents are complementary, reflect continuously refined analyses based on evolving design and safety integration activities

during preliminary design, address all required elements in accord with DOE-STD-1189, and have been evaluated by appropriate individuals and organizations.

- Assess whether the SDS addresses the following three main attributes of safety integration as the project progresses through project planning and execution:
    - The guiding philosophies or assumptions to be used to develop the design;
    - The safety-in-design and safety goal considerations for the project; and
    - The approach to developing the overall safety basis for the project.
- Ensure a Safety Evaluation Report (SER) has been completed and assess whether it adequately addresses the required review of the PDSA.
- Determine if a Construction Project Safety and Health Plan has been developed and prepared to assure worker construction hazards will be evaluated and controls will be adequately established.

7.0 Risk and Contingency Management
- Identify and assess any substantive changes to the Federal and contractor risk and contingency management plans or processes since CD-2.
- Assess whether the risk assessment and management plan have been updated, as appropriate, to address any new risks identified in final design and evaluate the adequacy of the management control process for risk status/updating..
- Evaluate whether the risk watch list appears to be complete.
- Assess whether all appropriate risk handling and mitigation actions, including accepted risks and residual risks, have been incorporated into the approved performance baseline, including cost and schedule contingency.
- Identify and assess cost and schedule contingency. Provide an assessment of whether the basis of contingency is reasonable for this type of project and its associated risks, and whether cost and schedule contingency, including value/cost associated with schedule contingency, remains sufficient for project risks.
- Assess MR/contingency drawdown and utilization history for reasonableness, and determine if sufficient contingency remains.

8.0 Value Management/Engineering
- Assess the application of Value Management/Engineering during final design, and if results have been incorporated into the approved performance baseline.

9.0 Acquisition Strategy/Plan
- Review the Acquisition Strategy/Plan to determine if there have been any significant changes and if the acquisition approach continues to represent the best value to the government.

10.0   Project Execution
- Review the PEP and determine if the project is being managed and executed in accordance with it. It should be updated to reflect any changes as a result of final design and be consistent with the other project documents.
- Identify and assess any changes to the integrated regulatory oversight program since CD-2. Determine if applicable Federal, state, and local government permits, licenses, and regulatory approvals, including strategies and requirements necessary to construct and operate a facility or to initiate and perform project activities are being obtained when needed to continue project execution on schedule or milestone dates established. Identify if schedule for receipt of authorization from regulators is updated and kept current.
- Identify and assess any changes since CD-2 to key inter-site or intra-site coordination issues, or stakeholder relationships. Determine if they are identified, addressed and resolved or appropriate plans in place to accomplish resolution.
- Identify and assess if any new GAO, IG, or other oversight body reports are available since CD-2 and determine if issues or concerns are adequately addressed. Similarly, identify and assess relevant Congressional language in authorization and appropriation bills.

11.0   Project Controls/Earned Value Management System
(Note: The EIR Team review of a contractor's EVMS does not constitute an EVMS Certification Review or Surveillance Review, unless made part of the EIR scope during the scoping meeting.)
- Assess the status of the contractor's project control system to include the EVMS relative to the requirements of the contract and DOE O 413.3A.
- Assess whether project control systems and reports are being used to report project performance, whether the data is being analyzed by the Federal IPT and contractor management, and that management action is taking place as an outcome of the analysis function.
- Evaluate the control process whereby projects incorporate formal changes, conduct internal re-planning, and adjust present and future information to accommodate changes. Determine if changes, including acceptable retroactive changes (correcting errors, routine accounting adjustments, or improving accuracy of the performance measurement data), are documented, justified, and explained.
- If the project contractor has a certified EVMS, assess whether a surveillance system is in place to maintain the system for continued compliance with ANSI/EIA-748.
    - Review the project's EVMS/project controls description.
    - Assess the project's surveillance program.
- If the project contractor does not have a certified EVMS, but a certification review is in process of being completed, assess the status of efforts and management focus on resolving open issues to obtain certification consistent with the baseline CD-3 date.

12.0 Integrated Project Team
- Review Federal and contractor IPT Charters and determine if all appropriate disciplines are included.
- Confirm that the FPD is certified at the appropriate level to manage this project.
- Assess both Federal and contractor project and construction management staffing in terms of number of personnel, skill set, effectiveness, quality, organizational structure, division of roles/responsibilities, and processes for assigning work and measuring performance. (Differentiate between full- and part-time IPT members.)
- Assess whether the Federal and contractor project and construction management teams can successfully execute the project.
- Ensure IPT membership includes appropriate safety experts. Identify if the Federal IPT nuclear safety expert is validated as qualified by the Chief of Nuclear Safety/Chief of Defense Nuclear Safety in accordance with DOE O 413.3A.
- Assess the span of control (in terms of not only supervisory responsibility but also management of dollars and project issues) of key project management personnel, including the FPD, to determine whether they can successfully perform their duties.
- Identify any deficiencies in the Federal or contractor IPTs that could hinder successful construction or project execution.

13.0 Safeguards and Security
- Assess whether a Preliminary Security Vulnerability Assessment Report as defined in DOE M 470.4-1 has been updated as required by DOE O 413.3A.
- Assess the completeness and accuracy of the applicable safeguards and security requirements to include Design Basis Threat requirements, the methods selected to satisfy those requirements, and any potential risk acceptance issues applied to the project and their incorporation into the project.
- Assess whether all feasible risk mitigation has been identified and that the safeguards and security concerns for which explicit line management risk acceptance will be required are appropriately supported.
- Assess any changes to safeguards and security requirements since CD-2 and whether there is any impact to the project's approved performance baseline.

14.0 Contract Management
- Assess the current contract including cost, schedule, and work scope relative to the approved performance baseline at CD-3 and identify any potential contract and project integration issues.
  - Determine whether the terms of the current contract support the project as currently planned and identify any gaps between the current contract and planned performance baseline.
  - Assess effectiveness of integrated change control and use of change control boards by both Federal and contractor organizations.

- Likewise, assess any planned contract modifications and requests for equitable adjustments relative to the performance baseline at CD-3.
- Evaluate the status of contract management, and if applicable, plans and schedule to bring the contract up to date.
- Assess project plans to self-perform construction and operations readiness versus subcontracting that work.
- Assess draft documents to be provided to the services (e.g., construction) and product (e.g., purchased materials and equipment) subcontractors including submittal of documents by the subcontractors required before notice to proceed (e.g., design requirements, EVMS, and systems testing and turnover requirements).

15.0 Start-Up Planning and Operations Readiness
- Identify and assess any changes to the start-up and operations readiness plan since CD-2 relative to the following LOIs.
- Ensure the start-up test plan identifies how tests will be determined to be successful, and that associated equipment and instrumentation has been included in the preliminary design.
- Review the startup and operational readiness test requirements and plans and assess whether they represent:
  - The acceptance and operational system tests required to demonstrate that the system meets design performance specifications and safety requirements, and KPPs, and
  - Sufficient scope definition to enable reasonable estimates of cost, schedule, and resources.
- Ensure traceability of functional, operational, and safety requirements into the start-up test plan.
- Determine any exceptions taken by potential construction contractor or project consultants in meeting startup test specifications.
- Assess whether cost, time and resource estimates are defensible to accomplish the required startup activities and have been included in the approved performance baseline.
- Assess whether there is sufficient cost and schedule contingency for test and equipment failure during start-up testing.
- Assess whether the start-up plan has been fully integrated with existing functional organizations including security.
- Assess whether results of tests (e.g., equipment tests, process tests, surrogate tests, etc.) have been factored into startup and operational readiness planning.

16.0 Quality Control/Assurance
- Identify and assess any changes to the Quality Control and Quality Assurance plan since CD-2 relative to following LOIs.
- Assess the applicability, completeness, adequacy, and flow-down of the Project Quality Assurance Program, including software quality assurance (SQA), based on DOE Order 414.1C and 10 CFR 830 Subpart A.
- Review the record of QA audits performed on the project and the disposition of the audit findings.

- Determine if the QA/QC Plan and implementing procedures address personnel training and qualifications, quality improvement programs, document and record management, work processes, receipt inspection, commercial grade dedication, management and independent assessments, acceptance test planning and implementation, and the process for dispositioning field changes. Assure that the contractor QA/QC Plan addressing the scope and content for the CD-2 phase of the project has been reviewed and approved by the appropriate DOE organization.
- Determine if there are QA/QC requirements for construction planning and work processes.
- Assess whether changes to any QA requirements (NQA-1 if applicable) have been appropriately incorporated into the "Design-to" functions, and costs, time, and resources adequately estimated and included in the baseline.

17.0   Sustainable Design
- Identify and assess any changes to sustainable design requirements and plans since CD-2 relative to following LOIs.
- Assess whether the project team has identified sustainable design features, in accordance with the Energy Policy Act of 2005, Executive Order 13423, and DOE O 450.1 chg 3, and that these features have been properly accounted for within the approved performance baseline.
- Assess whether the project is eligible for LEED certification.

18.0   New Technology and Technology Readiness
- Identify and assess any changes to technology readiness since CD-2 relative to following LOIs.
- Assess whether the identified technologies are at an increased and sufficient level of maturity to be included in construction. To the extent possible, provide an analysis of the TRL for the applicable technologies identified [Government Accountability Office Report 07-336 Major Construction Projects Need a Consistent Approach for Assessing Technology Readiness to Help Avoid Cost Increases and Delays, March 2007]
- Assess whether the approved performance baseline adequately provides for sufficient cost and schedule to implement these new technologies or new applications of existing technologies.
- Determine if the Risk Management Plan accounts for risks associated with new technologies or new applications of existing technologies, and that adequate contingency has been included.

19.0   Documentation and Incorporation of Lessons Learned
(Note: This element is based not only on good management practice, but the future CD-4 requirement to produce a lessons learned document.)
- Assess whether the project team is documenting and sharing lessons learned from their project internally and externally.
- Assess whether the project team is reviewing and incorporating lessons learned from this and other projects.

6.2   Required Documentation for the Construction or Execution Readiness Review

In general, the following documents (or equivalents) are normally required for the Construction or Execution Readiness Review. Other associated material may be requested by OECM and the EIR team to ensure a complete and accurate review is performed.

- CD-0 Documents (e.g., Mission Need Statement, Approval of Mission Need)
- CD-1 Documents (e.g., Approval of Alternative Selection and Cost Range)
- CD-2 Documents (e.g., Approval of Performance Baseline)
- Work Breakdown Structure (WBS) and WBS Dictionary
- Program Requirements Document (or equivalent)
- All Baseline Change Proposal and disposition documentation
- Final Design Documents (including drawings, specifications, design lists)
- Design Review Team resumes
- Conceptual Design Report
- Results of and Responses to project Design Reviews and Technical Independent Project Reviews
- Construction Execution/Management Plans
- Project Execution/Management Plans
- Detailed Resource Loaded Schedule
- Detailed bottoms-up Cost and Schedule Estimates based on the completed design (includes bases of estimate and assumptions)
- Contingency Analysis/Contingency Plan
- Critical Path and Near Critical Path Schedules
- System Functions and Requirements Document (also referred to as the "Design-to" requirements or Design Criteria)
- Integrated Project Team Charter (assignment letters as appropriate)
- Documented IPT Processes
- FPD Certification status and Integrated Project Team qualifications (resumes as appropriate)
- Risk Management Plan/Process
- Risk Watch List
- Risk Assessment
- Contingency/Monte Carlo Analyses and Contingency Plan
- Safety Documentation including:
  - Preliminary Documented Safety Analysis Report
  - Safety Evaluation Report
  - Hazards Analysis/Hazard Analysis Report
  - Preliminary Safety Design Report (Hazard Category 1, 2, or 3 nuclear facilities)
  - Preliminary Safety Validation Report (Hazard Category 1, 2, or 3 nuclear facilities)
  - Construction Project Safety and Health Plan
- Preliminary Security Vulnerability Assessment Report
- DNFSB and NRC Reports and correspondence
- Responses to DNFSB and NRC reports
- Acquisition Strategy/Acquisition Plan

- Value Management/Engineering Report
- Start-up Test Plan and other operations readiness plans (as appropriate)
- National Environmental Policy Act documentation
- Quality Control/Assurance Plan
- Interface Documentation (procedures, MOU/MOA with site M&O)
- Reports and CAPs from previous internal and external project reviews (if applicable)
- Project Control System description
- Change Control Process
- Monthly and Quarterly Progress reports for past year
- Contracts applicable to the project
- Contract Management Plan
- Pending contract modifications/Requests for Equitable Adjustment
- Project Data Sheets
- Project Funding Profile (Program budget/planning office should identify if this profile is within the Program target budget profile)

7.0 EIR IN SUPPORT OF OTHER ACTIVITIES

Below is a discussion of core elements that will typically form the scope of a Front-End Planning or a Project Status Assessment review, as well as recommended documentation for these reviews. Additional elements or LOIs beyond those presented in this document may be included in the scope of the review based on unique aspects of the project being reviewed. Both the scope and required documentation may vary for specific projects depending on the type of project.

7.1   Scope of Front-End Planning Review

The following list identifies specific LOIs that the EIR team may address.
- Determine the extent to which a complete WBS and a network schedule have been developed.
- Evaluate the completeness and appropriateness of key project requirements, including alignment with approved mission need.
- Review all major programmatic, economic, and project assumptions.
- Assess the quality of the preliminary PEP.
- Determine continued relevance/appropriateness of Acquisition Strategy.
- Examine whether the preliminary design has an integrated approach to engineering and operations.
- Examine completeness of VE activities.
- Assess whether the IPT Charter is complete with representation from key functions and areas.
- Assess whether safety has been appropriately incorporated into design, management, and work process.
- Review any DNFSB and/or NRC interfaces and discuss with the local representatives the status of their involvement. Assess whether DNFSB/NRC issues are being reasonably considered and addressed. If not, identify the outstanding issues, assess when they will be resolved and determine what risks they pose.

- Assess completeness of process for Independent Project Reviews (IPRs) including Technical IPRs.
- Review any requirements for Long-Lead Procurement (LLP) or early site work and associated plans.
- Determine whether regulatory requirements are being met and/or addressed by design and management (i.e. NEPA, RCRA, TSCA, CERCLA, CWA, CAA, etc).
- Determine the quality of Hazards Analysis.
- Assess incorporations of Sustainable Development.
- Determine completeness of QAP.
- Assess plans for compliance with safeguards and security requirements.

7.2   Required Documentation for the Front-End Planning Review

In general, the following documents are useful for a Front-End Planning Review. Other associated material may be requested by OECM and the EIR team to ensure a complete and accurate review.
- CD-0 Document (e.g., Mission Need Statement, Approval of Mission Need)
- CD-1 Documents (e.g., Approval of Alternative Selection and Cost Range)
- WBS and WBS Dictionary
- Network Schedule
- Conceptual Design Report
- Acquisition Strategy
- Project Execution Plan
- IPT Charter
- Design Review documents
- Technical Independent Project Review Documents
- Long-Lead Procurement documentation
- Environmental Documents
- Sustainable Development documentation
- Preliminary Security Vulnerability Assessment Reports
- Conceptual Safety Design Report
- Preliminary Hazards Analysis Report
- Quality Assurance Program documentation

7.3   Scope of Project Status Assessment Review

The following list identifies specific LOIs that the EIR team may address.
- Assess the current contract including cost, schedule, and scope of work relative to the current baseline and identify any potential contract and project integration issues or gaps between the terms of the current contract and the project as currently planned and executed.
- Likewise, assess any planned contract modifications and requests for equitable adjustments relative to the proposed performance baseline.
- Evaluate the status of contract management, and if applicable, plans and schedule to bring the contract up to date.
- Assess and identify any deficiencies in the Federal or contractor IPTs that could hinder successful execution of the project.

- Review the PEP and assess if the project is being successfully managed and executed in accordance with the PEP.
- Review Project Acquisition Strategy/Plan and assess if the project is being successfully managed and executed in accordance with the Strategy/Plan.
- Review the Project Quality Assurance/Quality Control Plan and assess if the project is being successfully managed and executed in accordance with it.
- Assess the status of the contractor's project control system to include the EVMS relative to the requirements of the contract and DOE O 413.3A.
- Assess whether the project control system and reports are being used to report project performance, whether the data are being analyzed by the Federal IPT and contractor management, and that management action is taking place as an outcome of the analysis function.
- Evaluate the control process whereby projects incorporate formal changes, conduct internal re-planning, and adjust present and future information to accommodate changes. Determine if changes, including acceptable retroactive changes (correcting errors, routine accounting adjustments, or improving accuracy of the performance measurement data), are documented, justified, and explained.
- Assess the status and results of the EVMS surveillance system for maintaining compliance with the ANSI/EIA-748.
- Assess status of start-up planning and operations readiness.
- Assess the status of updated hazards/safety analysis documentation and identify potential impacts to the approved performance baseline.
- Assess whether the risk assessment and management plan have been updated, as appropriate, to address any new risks identified, and evaluate the adequacy of the management control process for risk status/updating.
- Evaluate whether the risk watch list appears to be complete.
- Identify status of cost and schedule contingency, and provide an assessment of whether it remains reasonable for the project and its associated risks at the current state of execution.
- Assess MR/contingency drawdown and utilization history for reasonableness, and determine if sufficient contingency remains.
- Assess the status of the Critical Path is reasonably defined. Assess whether the Critical Path continues to reflect an integrated schedule and that schedule durations are reasonable.
- Provide the duration between the Critical Path completion date and the Project Completion date (CD-4). Assess whether the schedule contingency (float) remains reasonable at this phase of the project.

7.4   Required Documentation for the Project Status Assessment Review

In general, the following documents are useful for a Project Status Assessment Review. Other associated material may be requested by OECM and the EIR team to ensure a complete and accurate review.

- Project Execution Plan
- Construction Execution Plan
- IPT Charter
- Technical Independent Project Review Documents

- Hazards/Safety Analysis documentation
- Quality Assurance Program documentation
- Applicable contract documentation
- Project Controls/EVMS reports
- Risk management documentation

8.0 EIR REPORT

The format of the EIR report will generally follow the format of the EIR Review Plan in that for each element of the review scope identified in the Review Plan, the EIR team will discuss what was done by the project team to address this element followed by any EIR team findings or observations. On the cover page, or another prominent location at the front of the EIR report, the following information should be noted: EIR contractor company name, type of review, DOE program, project name, project no., project site/location, and report date. The EIR report will also contain an Executive Summary that summarizes key findings and recommendations, and their significance with respect to the validity of the proposed performance baseline, the readiness to begin construction, or the ability to successfully execute the project.

Formal transmittal of the final EIR report will be from the Director of OECM to the appropriate Deputy Administrator (DA) or Program Secretarial Officer (PSO).

8.1 EIR Team Assessment

The EIR report will provide an overall assessment, and then provide detailed Major Findings, Findings, and Observations. Further definition of Major Findings, Findings, and Observations is provided below:

- A Major Finding is any deficiency, condition, shortcoming, error, or omission that affects the project mission, the proposed performance baseline scope, KPPs, TPC, and/or CD-4 schedule, or in the professional judgment of the EIR team, is of such significance that safety, quality, risk management, planning, funding, other documented basis, or the ability of the project team to successfully execute the baseline is jeopardized. Major Findings can also include Critical Decision or baseline change prerequisites. The EIR team must review and accept the corrective actions (e.g., updated project documents and evidence files) and plans by the project team to resolve Major Findings prior to recommending that OECM validate the proposed performance baseline or to proceed with project execution. (This could be a two-step process where the critical deficiency, condition, shortcoming, error, or omission is corrected and/or an acceptable definitive plan and schedule have been identified for any corrective actions remaining open after the EIR team recommendation.

- A Finding is any lesser deficiency, condition, shortcoming, error, or omission, which does not impact the project mission, scope, KPPs, TPC, or CD-4 schedule, but in the professional judgment of the EIR team, could diminish safety, quality, risk management, planning, funding, other documented basis, or the ability of the project team to successfully execute the proposed performance baseline, unless corrected. At a minimum, a definitive corrective action plan and schedule to make

necessary changes that will satisfactorily resolve the Finding(s) must be reviewed and accepted by the EIR team prior to an EIR team recommendation to OECM to validate the proposed performance baseline or to proceed with project execution.

- Observations are not findings, but are comments on other project aspects that were evaluated by the EIR team. Observations may be positive, neutral, or negative. Negative Observations typically identify actual or potential project management issues (not considered Findings). The EIR team will provide a recommendation for negative Observations that the project team should consider for improving project planning, management, or performance. Positive Observations give credit for project management measures taken by the project team that merit recognition and may serve as a "lessons learned" for other project teams. Neutral Observations, while neither negative nor positive, are included in the EIR report to show that an area was, in fact, reviewed by the EIR team. Negative Observations for which suggested improvements are recommended do not require resolution acceptance by the EIR team. However, in any subsequent review, the EIR team should note the project team response to Observation recommendations and assess whether there has been any negative impact to project performance where the Observation and suggested improvement were not totally addressed and incorporated. Negative Observations of a prevalent or systemic nature will result in a Finding with an associated recommendation.

To the extent possible, the EIR team should make its determination of Major Findings, Findings, Observations, and related recommendations based on clearly identified and observed nonconformance with requirements such as those in DOE orders, policies, and directives, and note the nonconforming basis in the EIR report. However, consistent with recognized project management practices by the Project Management Institute (PMI), independent expert judgment of EIR team members is also an acceptable basis to make these determinations on a case-by-case basis where there may be a perceived weakness in project planning and execution that could potentially result in the project not being executed in a safe manner or result in breaching the scope, cost, and/or schedule baseline. Again, the EIR team must note its basis for these determinations in the EIR report. Since this EIR SOP is a general guide for planning and performing the EIR, it is not prudent or possible to list or identify specific acceptance criteria for the LOIs in each area—especially where expert judgment is concerned.

8.2   Corrective Action Plan

The EIR team provides recommendations that correspond to Major Findings, Findings, and negative Observations in the final EIR report to OECM. OECM in turn forwards the final EIR report, which includes a CAP template as an appendix. The template will include fields to be completed by the Program and project team. The CAP template will include, at a minimum, the following fields:
- EIR team Major Finding, or Finding (reference report page and paragraph)
- EIR team Recommendation
- Program/Project Team response (including whether the EIR team Recommendation is accepted or rejected), and proposed corrective actions/plans, ,including names of personnel assigned actions, and dates by when actions will be started and completed)

- Program/Project Team action plan status (identifying whether corrective actions are completed or pending including actual/planned dates for beginning and completing actions)
- EIR team Perspective/Response (identifying whether the EIR team agrees or disagrees with the action/plan, issues with the action/plan, whether the action/plan is accepted, if the Major Finding/Finding is closed, etc.).

A similar but separate CAP template should be provided for EIR Team Observations which have associated recommendations.

> Note: Programs and/or project teams may not always agree with EIR Findings. If the Program or project team disagrees with a Finding, the issue should be discussed during an EIR resolution conference as detailed in Section 4.0 of this SOP. Otherwise, the CAP response should contain the project team's concurrence or rebuttal and the supporting technical rationale. In addition, in the event of unresolved findings, the OECM representative will continue to monitor progress towards acceptable resolution in all instances. In certain cases, a follow-up EIR team visit may be required prior to validation, especially when the timeline for resolution is protracted for a number of months. Every effort should be made to resolve all Findings as quickly as possible after the CAP has been developed.

8.3   Corrective Action Plan Review Report

Following transmittal of the final EIR report from the Director of OECM to the applicable PSO/DA, the project team will address the Findings and Recommendations identified in the CAP shell included in the EIR report. The PMSO/project team should initially identify their proposed corrective actions in the CAP shell and provide it to OECM for review. OECM may engage the EIR team to participate in the review of the CAP in order to provide constructive feedback and to help focus the project team on acceptable actions to address the Recommendations and resolve the Findings.

When all applicable corrective actions have been taken and the appropriate project and cost/schedule baseline documentation has been updated, the project team should provide the completed CAP and updated documentation (an Evidence File for each Recommendation that corresponds to a Major Finding or Finding) to OECM through the appropriate headquarters program office. The EIR team will review the CAP and updated documentation submitted in the Evidence Files (typically without having to revisit the site), conduct teleconferences as necessary to resolve questions and open issues, and provide to OECM an updated recommendation in a CAP review report to validate (or not) the proposed performance baseline. If the recommendation is to not validate the proposed performance baseline, appropriate justification will be provided by the EIR team in the CAP Review report, including which Findings are not yet resolved or if any new Findings have been identified. As with the EIR report, the Program and project team will have the opportunity to review for factual accuracy the draft CAP Review report.

This cycle of CAP reviews will continue until either the EIR team is able to recommend validation, or OECM intervenes and determines that the open issues have been satisfactorily addressed by the Program and project team and validates the proposed baseline and/or endorses approval of the applicable Critical Decision. If an acceptable

CAP is not presented and appropriate corrective actions have not been completed within 6 months of the original EIR team on-site visit, OECM may require that a new EIR be conducted. Similarly, if within 6 months of an OECM memo validating the performance baseline and/or endorsing approval of the applicable Critical Decision, the baseline or Critical Decision has not been approved by the AE, a new EIR or limited EIR may be required to verify or update the original OECM validation or endorsement.

Findings and Recommendations for which the EIR team has accepted the project team's definitive plan and schedule to make appropriate corrective actions (following the EIR team recommendation to validate the performance baseline or proceed with execution) must be tracked until properly closed out. The responsible OECM project team member should periodically assess the status of these actions until closed by holding the project team and Program/PMSO responsible for ensuring closeout of these actions per the agreed-to plan and schedule. If necessary, a follow-up review by the EIR team may be warranted. If the agreed-to corrective actions are not accomplished per the definitive plan and schedule, it may be appropriate to change the project's monthly/quarterly assessment to YELLOW status for closer management attention. At CD-3, or for BCPs following CD-2 or CD-3, there should be a minimal number of such actions, and the length of time allowed to complete these planned corrective actions should be limited to about 3 months.

8.4   EIR Report Transmittal

OECM will use the final EIR Report, in combination with any corrective actions identified in the approved CAP, to assess whether the proposed performance baseline can be validated or project construction/execution should be started. OECM may also use information from IPRs, IG reports, or other such information in assessing whether a performance baseline can be validated or project construction/execution should be started. OECM will transmit the final EIR Report and document its decision and/or recommendation with respect to validation of the performance baseline or the start of construction/execution in a memorandum from the OECM Director to the appropriate DA or PSO.

9.0   EIR EVALUATION AND FEEDBACK

Program offices, project teams, and PMSOs are encouraged to provide OECM with feedback on the conduct of the EIR, including any comments related to:
- Scoping meeting
- Review Plan development
- Knowledge and professionalism of the EIR team members
- Preparation and support of the EIR team
- Resolution conference
- Timeliness and responsiveness of OECM and the EIR team
- Quality of the review and findings
- CAP review process

Evaluation comments and feedback will be used to improve the quality of the overall EIR process.

APPENDIX A

EIR PROTOCOL FOR EM CLEAN UP PROJECTS

Department of Energy
Washington, DC 20585

APR 2 4 2007

MEMORANDUM FOR DISTRIBUTION

FROM: JAMES A. RISPOLI
               ASSISTANT SECRETARY FOR
                  ENVIRONMENTAL MANAGEMENT

               PAUL BOSCO
               DIRECTOR
               OFFICE OF ENGINEERING AND CONSTRUCTION
                  MANAGEMENT

SUBJECT: Protocol for Environmental Management Cleanup
               Projects

The attached Protocol will govern the review and validation of Environmental

Management (EM) cleanup projects and is provided for your use and

implementation.

If you have any further questions, please call me at (202) 586-7709 or

Mr. J. E. Surash, Deputy Assistant Secretary for Acquisition & Project

Management, at (202) 586-3867 or Ms. Catherine Santana, Office of Engineering

and Construction Management, at (202) 586-5627.

Attachments

Distribution

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Mark A. Gilbertson, Deputy Assistant Secretary for Engineering and Technology,
  EM-20
Mark W. Frei, Deputy Assistant Secretary for Planning and Budget, EM-30
James J. Fiore, Deputy Assistant Secretary for Human Capital and Business
  Services, EM-40
John Surash, Deputy Assistant Secretary for Acquisition and Project
  Management, EM-50
Dae Chung, Deputy Assistant Secretary for Safety Management and
  Operations, EM-60

**PROTOCOL FOR EM CLEANUP PROJECT PERFORMANCE BASELINES
AND CONDUCTING THE EXTERNAL INDEPENDENT REVIEW
OR THE EM INDEPENDENT PROJECT REVIEW**

This Protocol for EM Cleanup Project will cancel the June 30, 2005 Protocol for EM Cleanup Projects in its entirety with the one exception of open EIR s. In FY 2003 EM decided to "projectize" the Project Baseline Summary (PBS) activities required to complete the EM mission at each DOE site. In most cases EM defines a Cleanup Project as the entire PBS; however, in some cases the project maybe a portion of one PBS or portions of multiple PBSs. It is EM's responsibility to clearly define the composition of each project prior to the on site review. EM cleanup projects will apply the project management principles and policies described in DOE Order 413.3A in a tailored manner. Unlike the line-item capital asset projects that require an OECM validated performance baseline prior to requesting construction funds, EM's cleanup projects were already in the CD-3 execution phase when EM decided to "projectize" them and are funded under operations budget accounts. Critical Decision (CD)-0 and CD-1 for these on going projects were waived because they were already in the execution phase. As new Cleanup Projects are created, a CD-0 and CD-1 approval by EM-1 as the designated Acquisition Executive (AE) utilizing the Environmental Management Acquisition Advisory Board (EMAAB) process will be required; however, for designated projects, the Deputy Secretary or Under Secretary for Energy may be the AE. These projects range from small projects with few risks and well defined scopes of work that can be completed in a short period of time with reasonable costs; to complex first-of-a-kind projects that have many unknowns, a longer schedule, and substantial costs; to projects that have undefined scopes of work with many risks and are scheduled for many years in the future at significant costs; to straight forward operating projects. Because of the diversity of projects in the EM portfolio it is impossible to apply a single approach to validating baselines.

The Office of Engineering and Construction Management and the Office of Environmental Management developed the initial protocol for conducting external independent reviews where the near-term baseline (scope that was under contract) would be validated and the remaining portion of the lifecycle cost would be considered reasonable. The results of those reviews were mixed, with fairly good success in validating the near-term baseline and less than expected in declaring the remaining portion of the lifecycle cost reasonable.

Discussions with the Deputy Secretary on EM Cleanup Projects prompted a change in the protocol for the execution of Cleanup Projects under DOE Order 413.3A. The protocol for EM having a near-term baseline that is reviewed for validation and a lifecycle estimate that is reviewed for reasonableness will continue; however, the approvals and the content for them will be modified. For CD-2, CD-3, and CD-4, the Acquisition Executive thresholds are as follows: the Deputy Secretary utilizing the Energy Systems Acquisition Advisory Board process serves as Secretarial Acquisition Executive (SAE) for Major System Cleanup Projects with a near-term baseline of $1B or more or other EM Cleanup Projects designated as Major System Cleanup Projects, and the Assistant

Secretary for Environmental Management using the EMAAB process serves as AE for Cleanup Projects with a near-term baseline below $1B. A new CD-0 and CD-1 approval will not be required when the next phase of the lifecycle estimate is advanced into a new near-term baseline; rather, a new CD-2/3 approval will be required after the EIR or IPR is completed and the near-term performance baseline is validated. As part of each new CD-2/3, key documentation such as the Project Execution Plan and Acquisition Strategy must be updated, reviewed, and approved. A CD-4 approval will be required when each near-term baseline is completed. The CD-4 documentation identified in DOE O 413.3A may be required for each CD-4.

Lifecycle of an EM Cleanup Project
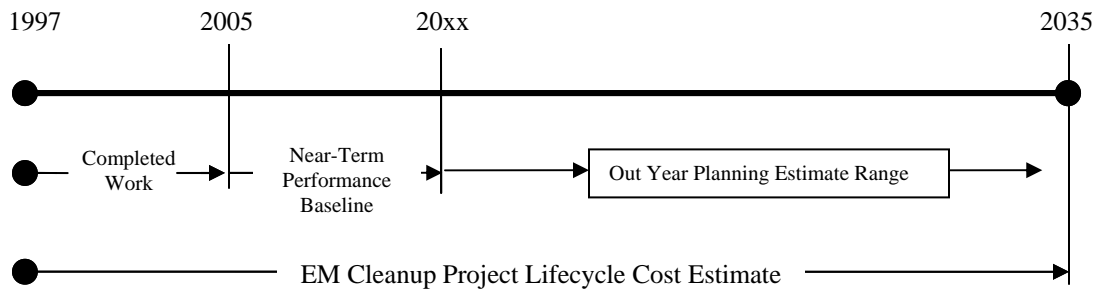
Components of the EM Performance Baseline which are validated by OECM
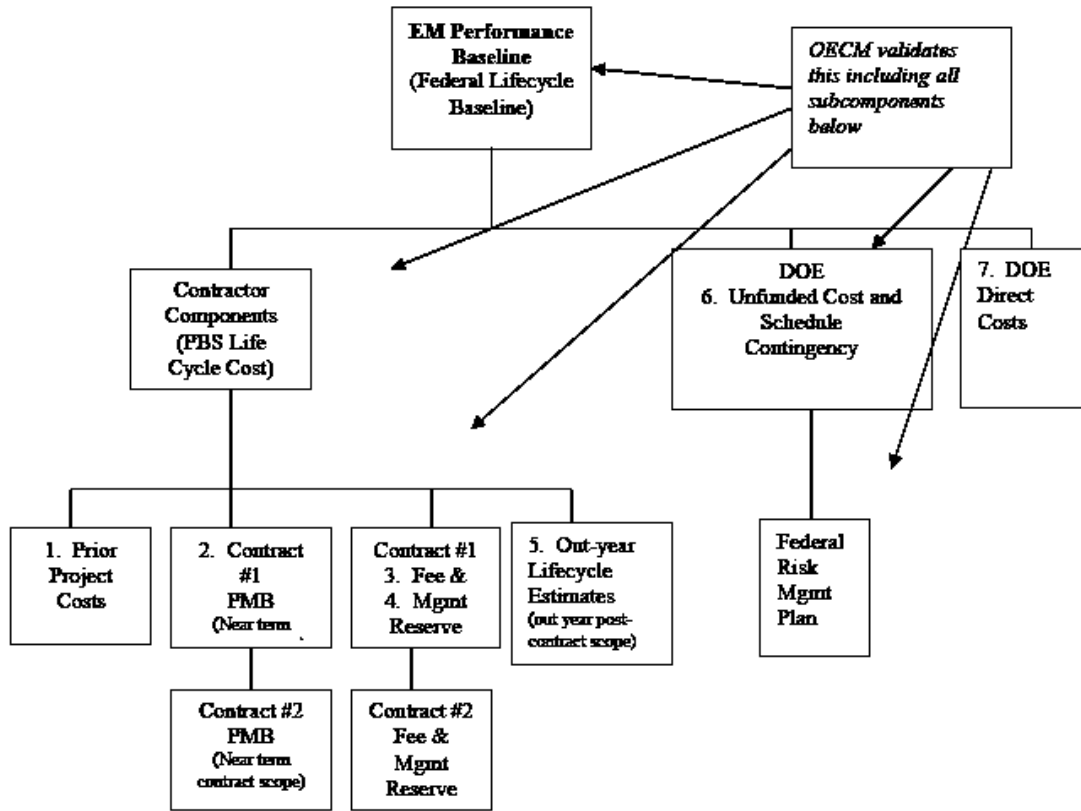
Lifecycle Cost (LCC) Estimates for EM Cleanup Projects will be comprised of three components:

a.) **Completed Work (The Prior Year Actual Costs)**. EM has established 1997 as the starting point for all Cleanup Projects. No costs before 1997 should be included in this number. The ending year will be the year before the near-term baseline begins. The timeframe of the completed work will increase each time the next near-term baseline or phase (5 or more years) of the cleanup project lifecycle is established and validated. In order to focus on the performance of the current near-term baseline, the performance measurement data including the cost and schedule variances and the variance at completion at the end of the near-term baseline will be archived in a historical file and not included as part of the near-term baseline variance reporting in either the EM Integrated Planning, Accounting, and Budgeting System (IPABS) or the OECM Project Assessment Reporting System (PARS). Each near-term baseline will have a new baseline to report performance against. Adjustments will not be allowed annually. The prior year actual costs are not a factor in determining who will serve as the AE or in determining if an EIR or IPR will be performed.

b.) <u>The Near-Term Performance Baseline (e.g., Near-Term Baseline).</u> The near-term performance baseline for Cleanup Projects will be for a minimum of five years or for the period of performance for the current contract if it exceeds five years. For projects which are scheduled to be completed within a few years (up to 3 years) after the five year period, the project validation will include the entire remaining out years. In the case where less than 5 years remain on the current contract, the near-term baseline should include the current contract plus the expected period of performance for the next contract. For Cleanup Projects with durations of five years or less, the entire project will be reviewed. In all cases except possibly the tail end of the project lifecycle, the near-term baseline will start at the beginning of a fiscal year and complete at the end of a fiscal year. When the proposed near-term period is not completely covered by a contract, EM will be responsible for developing summary level planning packages for those years not covered by the contract, and the entire near-term period will be included in the EIR or IPR. Once the contract is awarded and a detailed near-term performance baseline is developed, a follow-up limited EIR or IPR will be required if it exceeds the previously validated federal near-term performance baseline costs by 15 percent or more, increases schedule by a year, or modifies scope significantly. The near-term performance baseline includes fee and all costs associated with executing the project within the applicable (e.g., 5 year) window, even if the funding for the fee is in the next fiscal year budget which may be outside the near-term baseline. The fee is reported outside the performance measurement baseline but included in the near-term performance baseline. Because the number of years included in the near-term baseline can vary for each project, the final decision on the scope of the EIR including the length of the near-term baseline will be based on a negotiated agreement between OECM and EM. Near-term baselines will be based on target funding levels which are part of the current approved strategic funding plan (e.g., Five-Year Plan) issued by EM-30. An EIR will be conducted on the near-term baseline if its cost is equal to or greater than $250M, otherwise an IPR will be conducted. Data will be reported in PARS through IPABS and will be used in developing the Monthly Project Status Report for the Deputy Secretary. The AE must approve CD-2/3 for the near-term baseline within 6 months after OECM issues a memorandum validating the near-term performance baseline or the validation will be considered void. The goal will be to provide a draft EIR report within 30 days after the on-site visit is completed. Corrective actions plans and closure of the actions will be the joint responsibility of EM and OECM. Directed changes will be addressed thru the baseline change process with EM being responsible for approving those baseline changes, ensuring they are appropriately documented, and incorporating them into the near-term performance baseline in a timely manner. A directed change is a change imposed on a specific EM cleanup project by a source external to DOE (e.g., Congress, OMB, Regulator, etc.) that affects the near-term baseline. Examples include changes in funding, DOE policies or directives, and regulatory or statutory requirements. A directed change will require a limited EIR or IPR if it affects the near-term performance baseline cost by 15 percent or more or delays scope by more than one year. For EM Major

System Cleanup Projects an Independent Cost Estimate should be developed or an Independent Cost Review should be performed as part of the OECM near-term performance baseline validation EIR. An Independent Cost Estimate should be performed where complexity, risk, cost, or other factors create a significant cost exposure for the Department.

c.) <u>The Out-Year Planning Estimate Range (OPER).</u> The OPER is defined as the first fiscal year following the last fiscal year of the current near-term baseline through project completion. If the completion date remains constant, the timeframe of the OPER will decrease each time a new near-term baseline is validated. Verifying the reasonableness of the OPER will be part of either the near-term baseline EIR or IPR. EM-1 will approve the reasonableness of the OPER, and will be responsible for managing, changing and controlling the cost and schedule ranges. The cost and schedule ranges may be adjusted annually based upon changing project or program conditions including directed changes. The OPER is audited annually by an external auditor as part of the external Environmental Liability Audit Review. The OPER will only be reviewed by the EIR or IPR team, when a new near-term baseline review is being performed. The OPER will not be a factor in determining who will serve as the AE. EM will tailor the requirements of DOE O 413.3A to the OPER but at a minimum include a summary scope of work, a cost and schedule range, a funding profile provided by EM-30, and a robust project and program risk management plan. The amount of details required will be less than the near-term baseline, and may vary from project to project based upon the complexity of the work, ability to define the remaining scope, regulatory drivers, disposition paths, existing or new technology requirements, etc. The scope of the OPER EIR and required documents will be part of the OECM and EM negotiations. The OPER will be reported in IPABS and in the planning section of PARS.

This protocol has been revised to address the concerns raised by the Deputy Secretary; concentrate the EIR review effort on validating the near-term performance baseline; provide for tailoring the DOE O 413.3A requirements, review plans and criteria for the various types of cleanup projects (soil and groundwater, deactivation and decommissioning, environmental remediation, spent nuclear fuel, solid or liquid waste, operating projects, etc.); and for developing a standard set of expectations for each type of EM Cleanup project.

Summary Process for Review and Validation of the Near-Term Performance Baseline and Verification of Reasonableness of the OPER

1. The near-term baseline and OPER for EM Cleanup Projects will have a tailored approach applied for complying with the DOE O 413.3A requirements.

2. Tailored lines of inquiry and the required documentation will be negotiated between EM and OECM prior to the on-site review.

3. In approving the near-term performance baseline at CD-2, the AE will use the results of either OECM's EIR validation review or the EM IPR of the near-term baseline.

4. An EIR or IPR will be conducted for each near-term baseline and OPER. For efficiency and where sensible, a single EIR or IPR, or possibly a joint EIR/IPR, may be conducted at a site where multiple cleanup projects are presented for validation. This determination will be part of the OECM and EM negotiations. OECM will conduct EIRs of all Cleanup Project near-term baselines that are $250M million or greater. The EIR team will also verify the reasonableness of the OPER.

5. An OECM representative will accompany the EIR team to foster communication between the EIR and project teams, to facilitate the EIR process, ensure the focus remains on the scope of work and timeline, and help resolve issues.

   ➢ In advance of each EIR, OECM and EM will come to an agreement on the scope of the EIR and documentation that will be required.

   ➢ The FPD will be responsible for providing all required supporting program/project documentation to OECM and the EIR team 5 weeks in advance of the on-site review. No significant changes to the documentation should be made after it is submitted, nor should updated documentation be presented to the EIR team at the onsite review.

   ➢ The EIR team will recommend if the project as planned is executable to the scope, cost, and schedule baselines and OECM will make the final determination if the project's near-term baseline can be validated.

6. Each site will develop an integrated project and funds management plan based on a detailed scope of work, cost, schedule, and target funding (budget) profile for the near-term baseline for each PBS and a summary level plan for the OPER.

   ➢ Project near-term baselines must include, but are not limited to, establishing scope, cost and schedule, a resource loaded schedule or equivalent, work breakdown structure, a project execution plan or equivalent, updated Acquisition Strategy, risk management plan, and contingency analysis. Key documents should identify any further tailoring of the requirements contained in DOE O 413.3A and this protocol. The near-term baseline must be supported with documented basis for cost and schedule. For example EM project baselines must address:

      - Regulatory requirements in addition to technical and safety requirements.

      - Risk management through risk identification, analysis, and mitigation. It is the policy and practice of EM to conduct its operations in a manner that promotes overall risk planning including the assessment (identification and analysis of), implementation (or mitigation actions), monitoring, and

documentation of risk. The objective of this policy is to safeguard the interests of the public, the environment, the worker, and the government during the conduct of operations in meeting the EM mission objectives. It is also the objective of this policy to provide an accurate reflection of the bounding cost and schedule contingency requirements of the EM field operations.

➤ Project OPERs must include, but are not limited to, a summary level work breakdown structure, a cost range, a schedule range, a risk management plan, and contingency analysis. Other summary level documents may be available and required based upon the project scope and how well the OPER is defined.

➤ Both federal and contractor elements of the risk assessment/management plans and contingency analyses (e.g., management reserve, unfunded contingency) will be part of the EIR or IPR.

7. The FPD and the contractor shall use an Earned Value Management System (EVMS) to manage, control, and measure progress and performance. Each contractor's EVMS must be reviewed and certified as compliant with the American National Standards Institute (ANSI) EVMS standard (ANSI/EIA-748- 1998). OECM is responsible for the EVMS certification program. The EIR will perform a limited review of the contactor's EVMS system. If the contractor's EVM system has been certified by OECM, the EIR Team should inform OECM as to whether EVM is being executed per the certified system.

8. The FPD and the contractor shall identify measurable performance outcomes. Performance will be measured and performance metrics provided monthly to the appropriate executive official. Executive-level management reviews will be conducted for all projects quarterly to facilitate early identification of problems and to focus attention on solutions.

9. The FPD shall report cost and schedule performance data into PARS against the validated near-term baseline within 30 days after the near-term baseline has been validated. In the case where a near-term baseline has not been validated, the FPD shall report cost and schedule performance data into PARS against the EM controlled near-term baseline.

10. In the monthly assessment of project performance OECM will utilize all available information to make its assessment including but not limited to:
   ▪ PARS data
   ▪ Data Validity (including timeliness of entry)
   ▪ Quarterly Reports
   ▪ Project Reviews (EIRs & IPRs)
   ▪ Discussions with Program and Project Managers
   ▪ Other Information (e.g.DNFSB)

Projects will be assessed as:

- **<u>Green</u>** if the project is expected to meet its near-term cost/schedule performance baseline.
- **<u>Yellow</u>** if the project is at risk of breaching its cost/schedule performance baseline; and
- **<u>Red</u>**, if the project is expected to breach its cost/schedule performance baseline.

<p style="text-align: center;">**Attachment**</p>

EIR Scope for EM Cleanup Projects (in support of CD-2/3) and Required Documentation

The OECM EIR conducted on EM's cleanup project near-term baselines will cover five broad topical areas—Technical Scope, Schedule, Cost, Risk Management, and Project Management. Both the scope and required documentation may vary for specific operating projects depending on the types of activities that compose the project. This is in close conformance with the structure of the EM Project Definition Rating Index (PDRI). The verification of the reasonableness of the OPER will be based on similar summary level documents and information. The OPER will not be expected to meet the details required by the PDRI. Listed under each of the five topical areas are primary lines of inquiry. The review plan developed by the EIR Team, coordinated with EM and the project team, and approved by OECM for each EIR will clarify and expand upon the particular lines of inquiry in each topical area based on the scope of each project being reviewed.

Technical Scope
- Completeness of work scope definition; enables identification and quantification of risks
- Appropriateness of major methods utilized to achieve results
- High-level and regulatory requirements, key assumptions, end state vision, program and strategic initiatives, key agreements/decisions, Mission Need; key performance objectives
- Security, safety and hazards; DNFSB/NRC issues
- Facility - operations, D&D, construction; Remediation - soil, burial grounds, groundwater

Schedule
- Integrated project schedule consistent with the scope and cost estimate
- Detailed basis for the schedule duration
- Reasonableness of key schedule assumptions; relationship between PBSs
- Consistency of resource loaded schedule with the near-term baseline
- Reasonableness of schedule relative to the critical path and activity logic relationships
- Schedule contingency appropriate for the risks recognized

Cost
- Independent Cost Review of the near-term cost and assessment of the remaining lifecycle
- Basis for the cost estimates; comparison to parametric estimates and benchmark analyses
- Reasonableness of key cost assumptions
- Cost contingency appropriate for the risks recognized

- Consistency of project funding profile with resource-loaded schedule
- Inappropriate classification of discrete work as level-of-effort work

Risk Management
- Project risks identified, defined, prioritized, and analyzed
- Risk classification (high, medium, low) and quantification (probability and consequence)
- Avoidance and mitigation efforts incorporated in the baseline
- Risks analyzed and accounted for as MR/contingency in near-term and lifecycle baselines
- MR/Contingency based on quantitative risk analysis provides appropriate level of confidence

Project Management
- Management plans are valid, credible, and appropriate for type of project/operation
- Execution planning and staffing adequate and consistent with DOE requirements/guidance
- Organization and staffing plans/levels; appropriate disciplines included in IPT
- Identify any deficiencies in the IPT that could hinder successful execution of the project.
- Management controls, processes, procedures, responsibilities, authorities and reporting
- If EVMS not appropriate, assess the adequacy of an alternate project control system.
- Acquisition strategies and plans
- Performance management (e.g., performance metrics)

Required Documentation

In general, the following documents or equivalents are provided as a guide to determine which ones will be required for the EIR or IPR team to perform its review. Starting with the meeting between OECM, EM and the project team to define the scope of the EIR and continuing through the development of the review plan, OECM and EM will identify the appropriate documents that must be provided to the EIR team. The team may request other associated material to ensure a complete and accurate review is performed.

- Detailed Schedule with Resources for that portion of the near-term baseline that is under contract (resource-loaded schedule or equivalent documentation which links technical scope to cost resources to schedule),
- Summary Schedule with Resources for that portion of the near-term baseline that is not under contract but developed by EM.
- Detailed Cost Estimate of "near-term" activities for each project with supporting documentation for cost basis e.g. Vendor/subcontractor quotations for selected work items (normally provided at the on-site meeting); Escalation rates and Escalation Analysis;

- Critical Path Schedule for each cleanup project ;
- Target Funding Profile provided by EM-30
- Baseline Change Control Process description;
- System Functions and Requirements Document (e.g., "Design-to" requirements, Design Criteria - if applicable)
- Preliminary Design Drawings and performance specifications (if applicable)
- Results of and Responses to Preliminary Design Reviews (if applicable)
- Start-up Test Plan (if applicable)
- Hazards Analysis (if applicable)
- Risk Management Plan/Assessment (both federal and contractor)
- Management Reserve/Contingency analysis
- Acquisition Strategy
- Final Design Drawings and Specifications (if applicable)
- Results of and Responses to Site Final Design Review (if applicable)
- Construction Planning Document (if applicable)
- Current Contract (Scope of Work)
- Key Performance Objectives and other Performance Metrics (e.g., EM Gold Chart)
- Regulatory Compliance Plan (or equivalent) including Requirements, Processes and Status
- EM Liability Audit and Unfunded Contingency for Site
- Safety Documentation including Safety Validation Report (if applicable)
- Project Execution Plan, Performance Management Plan, Annual Work Plan, and/or equivalent documentation
- Results of previous reviews and Corrective Action Plan matrix showing resolution of all recommendations from previous reviews (i.e., EIRs, IPRs including PDRI results, Independent Cost Estimates/Reviews ,other independent reviews)
- IPT Charter, FPD appointment document, program/project management structure
- Most recent monthly reports (Three Months)
- Value Management/Engineering Report
- QA Plan and ISMP
- NEPA documentation
- Regulatory Consent Orders and Agreements
- Recent correspondence with DNFSB and/or USNRC identifying any issues or concerns and corrective actions taken or planned, if applicable.
- Complete WBS and WBS Dictionary
- Critical Decision approval documentation
- Sustainable environmental stewardship plan

Note: In advance of each EIR, the FPD shall provide, through EM headquarters all required documents in support of the EIR.

APPENDIX B

EIR SCOPING MEETING AGREEMENT FORM

CD-__ EIR SCOPING MEETING FOR _____

Date of Scoping Meeting: _____   Date of Planned On-Site EIR: _____

Name	Organization/Position	Phone/Email	Signature (Agree with Scope)

SCOPE OF EIR INCLUDES:

1.	13.
2.	14.
3.	15.
4.	16.
5.	17.
6.	18.
7.	19.
8.	20.
9.	21.
10.	22.
11.	23.
12.	24.

Required Specialty Skill Sets Include:	Recommended EIR Augmentees: (Feds/DOE Contractors - Name/Organization)

Notes:
1. Estimate $___K funding required for completing EIR, including CAP review and closure.
2. _____ is the selected EIR contractor.
3.
4.

APPENDIX C

PROJECT COST PROFILE TABLE

Project Cost Profiles

Project Number(s):	xxxxx	
Project Title:	Xxxx Xxxx	
Date updated:	mm/dd/yyyy	
TPC or range ($K):		

($K)

Cost Element	FY PY-3 FY 2004	FY PY-2 FY 2005	FY PY-1 FY 2006	FY PY FY 2007	FY CY FY 2008	Total Prior Years	FY BY FY 2009	FY BY+1 FY 2010	FY BY+2 FY 2011	FY BY+3 FY 2012	FY BY+4 FY 2013	Outyears FY 2014 and beyond	Total Current Estimate	Total Previous Estimate	Original Validated Baseline
Critical Decision (approvals)	CD-0		CD-1	CD-2/3A			CD-3		CD-4						CD-2
Total Estimated Cost (TEC)															
Design (PED)															
Design			4,600			4,600							4,600	4,600	4,600
Contingency			400			400							400	400	400
Total, PED	0	0	5,000	0	0	5,000	0	0	0	0	0	0	5,000	5,000	5,000
Appropriations			5,000			5,000							5,000		
Obligations			5,000			5,000							5,000		
Costs			600	3,000	1,400	5,000							5,000		
Construction (Post CD-2)															
Site Preparation						0	5,000						5,000	5,000	5,000
Equipment					700	700	2,000	6,100	2,000				10,800	10,800	10,800
All Other Construction						0	11,100	24,400	500				36,000	36,000	36,000
Contingency						0	1,000	1,500	500				3,000	3,000	3,000
Total, Construction	0	0	0	0	700	700	19,100	32,000	3,000	0	0	0	54,800	54,800	54,800
Appropriations					800	800	32,000	22,000					54,800		
Obligations					800	800	32,000	22,000					54,800		
Costs					700	700	19,100	32,000	3,000				54,800		
Total, TEC (Post CD-2)	0	0	5,000	0	700	5,700	19,100	32,000	3,000	0	0	0	59,800	59,800	59,800
Total, Contingency	0	0	400	0	0	400	1,000	1,500	500	0	0	0	3,400	3,400	3,400
Other Project Cost (OPC)															
OPC except D&D															
Conceptual Planning						0	1,250						1,250	1,250	1,250
Conceptual Design						0	1,250						1,250	1,250	1,250
Start-Up						0	7,500						7,500	7,500	7,500
Contingency						0	2,000						2,000	2,000	2,000
Total, OPC except D&D	0	0	0	0	0	0	12,000	0	0	0	0	0	12,000	12,000	12,000
Appropriations						0	12,000						12,000		
Obligations						0	12,000						12,000		
Costs						0	12,000						12,000		
D&D (Post CD-2)															
D&D						0	4,000						4,000	4,000	4,000
Contingency						0	2,000						2,000	2,000	2,000
Total, D&D	0	0	0	0	0	0	6,000	0	0	0	0	0	6,000	6,000	6,000
Appropriations						0	10,000						10,000		
Obligations						0	10,000						10,000		
Costs						0	10,000						10,000		
Total, OPC	0	0	0	0	0	0	18,000	0	0	0	0	0	18,000	18,000	18,000
Total, Contingency	0	0	0	0	0	0	4,000	0	0	0	0	0	4,000	4,000	4,000
Total Project Cost (TPC) (Post CD-2)															
Appropriations	0	0	5,000	0	800		54,000	22,000	0	0	0	0	81,800		
Obligations	0	0	5,000	0	800		54,000	22,000	0	0	0	0	81,800		
Costs	0	0	600	3,000	2,100		41,100	32,000	3,000	0	0	0	81,800		
Total, TPC (Post CD-2)	0	0	5,000	0	700	5,700	37,100	32,000	3,000	0	0	0	77,800	77,800	77,800
Total, Contingency	0	0	400	0	0	400	5,000	1,500	500	0	0	0	7,400	7,400	7,400

Instructions:
- Provide spreadsheet for each line item and MIE project greater than or equal to $20M. PED & construction PDS information should be consolidated into one spreadsheet.
- Fill in shaded yellow cells. If available, fill in shaded gray cells.
- First FY PY column shall be the FY of the CD-0 approval. As such, insert or delete columns as necessary.
- The "Total Previous Estimate" column represents the last BCP approval; otherwise, shall be the same as the "Original Validated Baseline" column.
- Provide comments, e.g. long lead, using comment function. [Toolbar <Insert> then <Comment>]