Modified APM CD-2 EIR Lines of Inquiry Definitions For Non-Nuclear Facilities

1. Basis of Cost

- Summarize the basis for the cost estimate.
- Assess the method of estimation and the strengths/weaknesses of the estimates for each WBS element reviewed. Ensure GAO's best practices in cost estimating are encompassed.
- Identify and assess the basis for and reasonableness of key cost assumptions as related to the quality of estimates for each WBS element, and risk management planning and contingency requirements.
- Was an Independent Cost Estimate for Major System Projects or an Independent Cost Review performed, as appropriate.
- Assess the amount of and basis for escalation.
- Verify that the cost value of schedule contingency is included in the TPC
- Evaluate reasonableness of the cost estimate.
- Verify findings from previous reviews, and the corrective actions are still in place.

2. Funding Profile/Budget

- Provide a completed project cost profile that specifies PED, TEC, OPC, TPC, Contingency/Management Reserve (MR) and if applicable, information such as Contract Budget Base, Fee, and DOE Direct Costs. Review and provide the basis for the Funding Profile (e.g., latest Project Data Sheet).
- Compare the budget with the cost requirements, and assess whether the costs and budget are reasonably linked and considers normal budget turbulence (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.
- Validate that the funding profile remains viable and intact throughout the project lifetime.

3. Basis of Schedule

- Identify and summarize the detailed basis of schedule estimate.
- Assess the basis for and reasonableness of key assumptions and schedule duration.
- Assess whether the Resource Loaded Schedule is complete and consistent with the WBS for the project work scope.
- Assess reasonableness of activity sequences, activity duration, and what resources are loaded.
- Ensure that project activities are linked.
- Determine and the method of schedule contingency derivation and the adequacy of schedule contingency amount. Schedule contingency should be placed between the end of the last project critical path activity and the "Submit Request for CD-4" milestone.

4. Critical Path

- Assess whether the Critical Path is reasonably defined. Assess whether the Critical Path is based on an integrated schedule and that the schedule durations are reasonable.
- Assess the critical path schedule for level of effort activities and verify that "near critical paths" are clearly identified.

5. Basis of Scope

- Assess whether the WBS and WBS dictionary incorporate all project work scope (including QA/QC, safety, security, ES&H, and other Policies, Orders, Standards, and Guides including DOE O 413.3B.). Ensure that the defined work scope and system requirements are derived from and consistent with the approved Mission Need and include a clear definition of responsibility for execution of each or the defined portions of work.
- 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. Identify all underlying technical assumptions and assess whether they are sound and reasonable.
- Assess whether the requirements are defined well enough to validate a performance baseline.
- Assess whether the CD-4 (project completion) activities, requirements, and project key performance parameters (KPP) are clearly defined. Assess whether these activities and requirements are under change control and not expected to change. Ensure the KPPs are measurable and can reasonably be determined as complete.

6. Basis of Design—for Hazard Category 1, 2, and 3 Nuclear Facilities

7. Preliminary Design Review and Comment Disposition

- Assess whether the design is sufficiently matured to establish the performance baseline.
- Confirm that a design review has been performed by a qualified team and provide an assessment of whether the design review team had appropriate experience and technical disciplines
- Ensure the adequacy of the preliminary design including adequacy of the drawings and specifications, and consistency with system functions, requirements, and KPPs.
- Review the design review comments and responses. 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.

8. Start-Up Planning and Operations Readiness

- Ensure the start-up test plan identifies who and how tests will be determined to be successful. Also, that associated equipment and instrumentation has been included in the 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 contractor or project consultants in meeting startup test specifications.
- Assess whether cost, time and resource estimates includes startup activities and have been included in the performance baseline if applicable.
- 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.

9. 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.

10. New Technology and Technology Readiness—Does Not Apply to SC

11. Risk and Contingency Management

- Describe the approach used to identify project risks.
- Assess adequacy and completeness the risk management planning including the method(s) used to identify risks, and whether a reasonably complete list of potential risks was developed and that impacts have been incorporated into the performance baseline.
- List key risks (e.g., programmatic, economic, those resulting from assumptions, technical, including those associated with use of critical technologies, design maturity, estimating methodology, etc.), impacts, and risk rankings in a table.
- Identify and assess cost and schedule contingency (both contractor and DOE).
- Ensure contingency analysis and allowances are tied to risk assessments.
- Assess adequacy of the qualitative analysis and rating (high, medium, or low) of current risks for probability of occurrence and for consequence of occurrence.
- Evaluate the adequacy of the management control process for risk status/updating.
- Ensure the project team fully understands the distinction between MR and Contingency.

12. Documentation and Incorporation of Lessons Learned

- Assess whether the project team is documenting and sharing internal and external lessons learned and assess whether the project team is reviewing and incorporating lessons learned from this and other projects.

13. Project Execution

- Ensure DOE O 413.3B requirements are met for each Critical Decision.
- 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 organizations, and if all comments have been resolved.
- Assess if all applicable Federal, state, and local government permits, licenses, and regulatory approvals, including strategies and requirements necessary to construct and operate a facility or to perform project activities are identified, resolved, and will be obtained when needed.
- 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.

14. 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 construction contractor staffing to ensure adequate oversight of the work, including safety, performance, and quality.
- Determine oversight and management of the construction contractor by IPT.

15. Contract Management

- Assess the current existing 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 and identify any gaps between the current contract and proposed performance baseline.
- 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 to bring the contract up to date.
- Assess draft documents to be provided to the subcontractors including submittal of documents by the subcontractors required before notice to proceed (e.g., design requirements, EVMS, and systems testing and turnover requirements).
- Ensure the project Contracting Officer is engaged and a member of the project team.

16. Project Controls/EVMS

- Assess whether project control systems and reports are being used to report project performance, whether the data is being analyzed and that management action is taking place.
- Evaluate the control process to ensure compliance with the American National Standards Institute (ANSI)/EIA-748A requirement.
- If the project contractor has a certified EVMS, assess whether a surveillance system is in place to maintain the system for compliance with ANSI/EIA-748A or applicable version.
- If applicable, determine if there is an EVMS certification review scheduled to occur within sufficient time and assess the project's readiness for certification review and certification.
- Ensure required reporting capability through PARS II.

17. Value Management/ Engineering (VM/VE)

- Assess the applicability of VM/VE analysis has been performed with results being incorporated into the proposed performance baseline.
- Provide an assessment of the VM/VE 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 tradeoff studies and various alternatives reviewed.

18. 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.
- 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.
- Assess whether there are adequate contractor incentives (and disincentives).
- Evaluate any changes from previously approved Acquisition Strategies/Plans and assess whether the current Strategy/Plan still represents best value to the Government.

19. Integrated Project Team (IPT)

- Review the IPT Charters and determine if all appropriate disciplines are included and adequately resourced or designated to execute the project successfully.
- Confirm that roles, responsibilities and authority are defined clearly.
- Assess whether there is an effective working relationship with all parties involved.
- Confirm that the FPD is certified at the appropriate level to manage this project.
- Identify any deficiencies in the IPTs that could hinder successful execution of the project.

20. Hazards Analysis (HA)/ Safety

- Assess whether the hazards identified and the accident scenarios represent a reasonably comprehensive list. Determine if controls are capable of mitigating defined accidents.
- 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 for required documentation and necessary SSCs.
- Assess the HA process, including the use of internal and external safety reviews.
- Assess status of and resolution of corrective actions by the contractor, including incorporation of any additional identified safety requirements.

21. Quality Control/ Assurance

- Assess the applicability, completeness, adequacy, and flow-down of the Project Quality Assurance Program, including software quality assurance based on DOE Order 414.1C and 10 CFR 830 Subpart A.
- Review 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 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.

22. Safeguards and Security

- 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.
- If applicable, determine compliance with Preliminary Security Vulnerability Assessment requirements as defined in DOE M 470.4-1 and as required by DOE O 413.3B.
- 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.

Note: For Hazard Category 1, 2, and 3 Nuclear Facilities, additional requirements will apply.