**SC Independent Project Reviews: Potential Checklist for New Reviewers**

Office of Science, Office of Project Assessment (OPA) conducts numerous Independent Project or Peer Reviews with participation from site offices, laboratory personnel, and contractors. At times, there are new reviewers who have not participated in these reviews. The purpose of this document is to provide guidance, at a summary level on SC Project Peer Reviews. Although other areas such as design and ES&H are included, the focus of this list emphasizes cost and schedule questions. OPA will revisit this checklist continually and update as necessary.

It should be noted that the reviewers are not limited to or bound by the checklist and are encouraged to investigate any area or ask other questions he/she may feel appropriate.

**Critical Decision-0, Approved Mission Need**

Prior to CD-0, there are no SC Project Peer Reviews. This is because a proposal is not considered a project until CD-0 is approved.

Mission Validation Project Review is necessary prior to CD-0, but this review is performed by Office of Science Programs and not by OPA. The purpose of the Mission Validation Project Review is to ensure that the proposed project is necessary and meets the mission of Office of Science.

**Critical Decision-1, Approve Alternative Selection and Cost Range**

The purpose of a CD-1 review is to evaluate the alternatives analyzed[[1]](#footnote-1) and selected, to evaluate the completeness of the conceptual design of the selected alternative, and to develop the preliminary cost and schedule range for the selected alternative. Below is a listing of items to consider for CD-1 reviews.

* Assess whether the acquisition strategy has considered the full range of alternatives to achieve the mission need in the most effective, economical, and timely manner. Were the life-cycle cost and benefit of the alternatives developed and are they realistic and appropriate?
* Has the project selected the most appropriate alternative considering the life-cycle cost and life-cycle benefits?
* Assumptions—assess that the assumptions (technical, cost—escalation, shift work, learning curve, schedule, funding, regulatory, resource availability—labor, material, equipment, etc.) are realistic for the selected alternative.
* Ensure that scope and preliminary KPPs are clearly defined and achievable. Note: the Threshold KPPs is the project performance baseline—established at CD-2.
* Are stakeholders or users involved in the development of project scope?
* Design Review—was an independent conceptual design review conducted?
* Conceptual Design—is the conceptual design sufficiently mature for this stage of the project?
* Has a Work Breakdown Structure and dictionary been developed at the appropriate level for CD-1?
* Have the risk management approach/plan been developed? Assess whether the key risks for the recommended alternative have been identified.
* Is the funding profile consistent with the proposed schedule and are the funds (Other Project Cost versus Total Estimated Cost, Project Engineering and Design, Major Item of Equipment, etc.) appropriately used?
* Project Team—Number and skill mix of full and part-time members, organizational structure, division of roles/responsibilities, lines of communication and authority established.
* Are appropriate members with needed experience (budget, legal, real estate, ES&H, procurement, QA, etc.) included as part of IPT?
* Assess key inter-site and intra-site coordination and integration issues and determine if they are identified and appropriately accounted for.
* Review basis of preliminary cost and schedule estimates for reasonableness. Determine the basis of the cost and schedule estimate (vendor quotes, historical data, engineering judgment, etc.), when were they developed or updated, and who owns/developed the estimates (Note: For CD-1 a detailed logically linked schedule is not ‘required’ as the project scope definition and cost are preliminary).
* Is the cost and schedule contingency estimate reasonable for the risks associated with the early-phase of the project?
* Assess whether the preliminary critical path is identified. Assess whether the preliminary cost and schedule estimates reflect cost contingency and schedule contingency needed to address early major risks to the project.
* How much of the schedule contingency is funded?
* Compliance with requirements met or in place—value management, hazard analysis, ES&H, QA, LEED/HPSB, one-for-one replacement, all documents prepared and ready for approval, etc.
* Is the project documenting and sharing lessons learned and have incorporated the risks and lessons learned from other relevant projects?

**Critical Decision-2, Approve Performance Baseline**

The purpose of CD-2 review is to assess the project’s readiness for approval of the performance baseline. CD-2 is the most important CD because the project success or failure will be measured against the CD-2 baseline.

* Assess that the assumptions (technical, cost—escalation, shift work, learning curve, schedule, funding profile, continuing resolution, regulatory requirements, resource availability, etc.) are realistic.
* Ensure that the project scope and the threshold and objective KPPs are clearly defined. In addition, the project should document how the completion of KPPs is to be verified (i.e., actual testing versus calculations).
* Is the project point estimate based on Threshold or Objective KPP scope?
* What is the cost difference between Threshold and Objective KPPs?
* Are there scope enhancements or deletions beyond the difference between Threshold and Objective KPPs?
* Assess whether the WBS incorporates all project work, with sufficient details, and whether the WBS represents a reasonable breakdown of the project work scope and is product oriented.
* Assess whether a WBS dictionary adequately describes the project work scope.
* Preliminary Design—is the preliminary design sufficiently mature to establish a high quality, reliable cost and schedule estimate for a Performance Baseline?
* Design Review—was an independent preliminary design review conducted?
* For the key inter-site and intra-site coordination and integration issues identified, determine if they are addressed and resolved or whether appropriate plans are in place to accomplish the resolution.
* Risk Management—assess whether the project risks have been identified, evaluated, assigned, with mitigation steps and dates defined. How often are the risks assessed and registry updated?
* Does the Risk Register include all appropriate risks with high probability and/or impact?
* Is the funding profile realistic and consistent with the proposed cost and schedule? Also, does the cumulative Budget Authority and Budget Obligation profile for the project reasonable and consistent with the project plans.
* Project Team—Number and skill mix of full and part-time members, organizational structure, division of roles/responsibilities, lines of communication and authority is established.
* Are appropriate members with needed experience (budget, legal, real estate, ES&H, procurement, QA, etc.) included as part of IPT?
* Are the Control Account or Cost Account Managers responsibilities reasonable considering the complexity and size/cost of work scope? Are they overburdened?
* When was the cost and schedule updated? How recent are the vendor quotes? Is the schedule resource loaded and logically tied? Is the critical path clearly identified? Does it includes all activities and takes into consideration or linked to activities outside project scope, but impacts the project?
* Provide a listing of near critical path activities (activities with 60 to 90 days of float).
* Assess whether the preliminary critical path is identified and that estimate include appropriate cost and schedule contingency. Assess whether the preliminary cost and schedule estimates reflect cost contingency and schedule contingency needed to address risks.
* What is the standing army cost and how is it calculated?
* Is the staffing plan, which shows the different resources needed throughout the project realistic and consider impact of other projects or site activities?
* How is Estimate to complete (ETC) calculated?
* How often is detailed ETC performed?
* Is EVMS ready for implementation? Has it been tested?
* How much of the schedule contingency is funded? What is the basis of this estimate?
* Compliance with requirements met or in place—value engineering, hazard analysis, ES&H, QA, LEED/HPSB, one-for-one replacement, all documents prepared and ready for approval, etc.
* Are the project documents consistent?

**Critical Decision-3, Approve Start of Construction**

The purpose of CD-3 review is to ensure that the project is ready for contract award and to start construction or fabrication. The project is beyond CD-2 so the review should focus on implementation of systems (QA, Safety, EVMS, risk management, etc.—that were established earlier in the project is being used).

* For this stage of the project, are the number and skill mix of full and part-time members, organizational structure, division of roles/responsibilities, lines of communication and authority adequate?
* Is the project safety organization ready for fabrication/construction?
* Are the QA processes appropriate and being implemented properly?
* Final Design—is the final design sufficiently mature for this stage of the project?
* Design Review—was an independent final design review conducted?
* Review project performance and understand the causes of good or poor performance.
* Review Baseline Change Proposals to understand where project changes are.
* If applicable, is the project using the EVMS appropriately?
* Has the number of critical activities increased and why?
* Is project risk registry updated regularly?
* Is the project cost and schedule estimates updated regularly?
* Are the cost and schedule estimate adequate for this stage of the project?
* How recent is the latest detailed estimate and how are latest EAC and ETC estimated?
* Are there adequate resources or labor available?
* Has the project developed a more detailed and prioritized list of scope enhancement or deletions including decision dates?

**Critical Decision-4, Approve Start of Operations or Project Closeout**

The purpose of CD-4 review is to ensure that the project goals have been successfully completed, lessons learned have been captured, and that the project is ready for closeout.

* Verify that the Threshold KPPs have been met.
* Verify the Draft Project Closeout Report with lessons learned is complete?
* Are there any contract claims, how much and is there sufficient contingency to cover the costs?
* Is there a plan for the remaining project fund or contingency to be used?
* Is the project ready for operations? Have all the requirements and activities been completed?

**Status Reviews**

Depending on the size and complexity, status reviews of projects may also be performed throughout the project stages. Depending on the phase of the project, the reviewer could use this list as applicable. However, the purpose of the status review will vary depending on phase of the project and it is recommended that the charge questions be used as a guide for the review inquiries.

1. In theory, the alternative analysis is to be performed by organization that is independent of the contractor organization responsible for constructing the capital facility. [↑](#footnote-ref-1)