U.S. Department of Energy

Washington, D.C.

NOTICE

DOE N 4700.5

EXPIRES: 8-21-92
8-21-93

SUBJECT: PROJECT CONTROL SYSTEM GUIDELINES

1. PURPOSE. To establish the Department of Energy (DOE) policy for applying control systems for overall management of projects, including Major System Acquisitions (MSAs), Major Projects (MPs), Other Line Item projects, General Plant Projects (GPPs), and operating funded projects and contracts within those projects.

2. CANCELLATION. DOE 2250.1D, COST AND SCHEDULE CONTROL SYSTEMS CRITERIA, of 6-12-92.

3. BACKGROUND. Previously, DOE used the Cost and Schedule Control Systems Criteria (CSCSC) to evaluate management systems on selected contracts primarily for MSAs and MPs. Use of the CSCSC were normally neither required nor encouraged for all other projects. Consequently, the Department has no existing policy for application of overall, integrated project controls to the wide range of DOE projects. Replacing the CSCSC with more comprehensive guidelines and requiring application of these guidelines to all construction and environmental projects will significantly expand fundamental controls across the spectrum of DOE projects.

4. DISCUSSION.

   a. A cornerstone of the Department's project management policy is the concept of accountability at appropriate levels for project control and management. Project managers, as accountable managers, must be directly involved in the application of overall project controls. This policy ensures that the accountable project manager is responsible for appropriate application of overall project controls.

   b. An essential element of accountability is overall project control of technical scope, cost, and schedule baselines as well as associated research and development (R&D), transition planning and baseline changes. This policy reflects Departmental concern with all elements of project control and expands the earlier CSCSC to encompass overall control by placing greater emphasis on control of technical, schedule, and cost baselines and baseline changes.

   c. The previous CSCSC Order focused principally on MSAs and MPs; however, the Department is responsible for many other types of projects. This policy directs a cost effective, graded approach to application of project controls, providing flexibility in application to all projects and contracts, MSAs or other, on the

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basis of the scale and type and unique needs of each project. Although the principles of project control apply equally to all projects, project control for a $1 million GPP should be less complex and less costly than for a $100 million MSA. Project controls should be applied according to the needs of the specific project commensurate with technical, schedule, and cost risks.

d. This Notice provides Project Control System Guidelines (Guidelines) (see Attachment 2), which expand upon and replace the earlier CSCSC. The management systems needed to properly control the direction and progress of DOE projects reach beyond control of costs and extend to control of technical and schedule baselines which significantly impact project costs. The Guidelines emphasize management control system results and de-emphasize the process to obtain the results. The Guidelines apply to all projects; however, full implementation of each guideline is not required. The DOE Project Manager will assess each contract and project to determine the appropriate degree of Guidelines application based on project risk.

e. The Guidelines are assembled into three primary categories:

(1) Baseline Development. This category includes management actions necessary to define project scope and responsibilities, establish baselines, and plan the project.

(2) Project Performance. This category includes management actions after work commences that are necessary to monitor project status, report and analyze performance, and maintain visibility of identified project risk.

(3) Change Management. This category includes management actions necessary to ensure adequate control of changes to project baselines, including the performance measurement baseline.

f. The Project Control System (PCS) retains use of the Uniform Reporting System's standardized report formats. However, the PCS also encourages use of nonstandard reports to depict technical performance indicators, critical path schedule status and other project and contract-specific reports.

g. Through publication of this Notice, the formal CSCSC contractor validation process is replaced by a compliance review process consisting of a review of the system description followed by a functional appraisal. The review responsibility has been assigned to each DOE Field Office with Program Secretarial Officer (PSO) participation. PSOs sponsoring MSAs without direct DOE Field Office project management shall be responsible for conducting compliance reviews of their contractors' systems.

h. Assistance in implementation of this new policy is available. A reference manual is available to provide implementation guidance. The manual addresses application of the Guidelines through a risk-based, graded approach. The manual clarifies, and provides examples in application of each guideline element. Additional sections address roles and responsibilities, project status analysis, reporting, and the compliance review process. A Project Control System (PCS) Advisory Team is available through the Office of Program/Project Management and Control to provide assistance as required.

5. REFERENCES.

a. DOE 1332.1A, UNIFORM REPORTING SYSTEM, of 10-15-85, which establishes and provides implementing instructions for a uniform system of reporting the accomplishments under contracts.

b. DOE 4240.1K, DESIGNATION OF MAJOR SYSTEM ACQUISITIONS AND MAJOR PROJECTS, of 6-23-92, which lists specific DOE projects which have been designated as Major System Acquisitions and Major Projects.

c. DOE 4700.1, PROJECT MANAGEMENT SYSTEM, of 3-6-87, which establishes the DOE project management system and provides implementing instructions, formats, and procedures, sets forth the principles and requirements which govern the development, approval, and execution of DOE's outlay program acquisitions.

d. DOE 5700.2D, COST ESTIMATING, ANALYSIS, AND STANDARDIZATION, of 6-12-92, which establishes the policy and responsibilities for developing and reviewing project cost estimates, preparing independent cost estimates and analysis, standardizing cost estimating procedures, and improving overall cost estimating and analytical techniques, cost database, cost and economic models escalation, and cost estimating systems.

6. DEFINITIONS. See Attachment 1.

7. POLICY.

a. PSOs, field elements, and their contractors are expected to comply with the Project Control System Guidelines in management of all projects by applying guideline elements in a graded approach to reflect the degree of each project's and contract's technical, schedule, and cost risks.

b. The Guidelines shall be used to evaluate contractors' project control systems to assure that the systems are sound and that progress reports to DOE management are reliable.

c. In accordance with SEN-6E, DEPARTMENTAL ORGANIZATIONAL AND MANAGEMENT ARRANGEMENTS, of 2-21-92, the DOE Field Office Manager is accountable to a Lead PSO on institutional and crosscutting issues. The Lead PSO is responsible for developing an Implementation Plan for his/her DOE Field Office. The Implementation Plan shall be applicable to all projects managed by the DOE Field Office. The Lead PSO shall be responsible for coordinating concurrences with all other PSOs sponsoring projects which are managed through that DOE Field Office.

d. Each DOE Field Office shall formulate an Implementation Plan for this Notice which outlines the graded approach to projects, addresses applicability, delineates responsibilities, and details the compliance review process. This Implementation Plan will be reviewed and approved by the Lead PSO and other PSOs sponsoring projects managed through the DOE Field Office, and the Office of Procurement, Assistance and Program Management, through the Office of Program/Project Management and Control.

e. PSOs managing MSAs without direct DOE Field Office project management support shall formulate an Implementation Plan which outlines the graded approach to contracts, addresses applicability, delineates responsibilities, and details the compliance review process. This Implementation Plan shall be approved by the PSO and the Office of Procurement, Assistance and Program Management, through the Office of Program/Project Management and Control.

f. PSOs shall ensure implementation of timely and cost-effective project control systems in compliance with these Guidelines for all their projects by participating in the compliance review process and concurrence in compliance review results.

g. An Advisory Team will be chartered by the Office of Program/Project Management and Control to provide expertise and guidance to ensure a practical, cost-effective interpretation of the Guidelines. This team will provide assistance in determining compliance for unusual circumstances and will recommend resolution of discrepancies that arise in determining acceptability.

h. This Notice does not apply to Power Marketing Administrations or facilities and activities covered under Executive Order 12344.

8. OBJECTIVES.

a. Provide a basis for application of project management controls and when to apply these controls to all DOE projects and project-related contracts.

b. Provide project managers the flexibility to tailor requirements, encourage formulation of customized project control strategies for each project or group of projects, and emphasize the appropriate degree of application for each guideline element to effectively control technical, schedule, and cost risks.

c. Provide contractor and DOE management with timely, useful information to manage a project or contract and communicate information to senior DOE management. The Guidelines establish a framework to:

(1) Properly define and organize project and contract work;

(2) Establish and maintain technical, schedule, and cost baselines;

(3) Develop practical, meaningful performance indicators to provide early warnings of project problems;

(4) Ensure management visibility for control of technical, schedule, and cost baselines;

(5) Provide timely, valid, and traceable baseline performance and trend data; and

(6) Ensure accurate, timely and properly controlled baseline changes;

d. Ensure consistent Guidelines application throughout the life of the contract or project.

e. Promote consistent evaluation of contractors' systems and provide assurance that such systems are sound and cost effective.

f. Compliance reviews for new MPs should be completed within 120 days after KD1 and for MSAs within 180 days after KD1.

9. APPLICABILITY OF GUIDELINES.

a. The Guidelines shall be used by all PSOs for controlling all MSAs, MPs, other line item projects GPPs and operating funded projects. The Guidelines are applicable to all projects whether for production, facility modifications, or research and development using a risk-based, graded approach.

b. The Guidelines shall be applicable to DOE contractors performing DOE project work. The Guidelines reflect the needs of sound project management while providing flexibility. Flowdown of Guidelines to individual contractors within a project, and the degree of application of each guideline element, shall consider risk, duration, cost, management utility, cost effectiveness, and

contract type. Fixed-price contracts will normally be required to implement selected guideline elements; schedule status reporting, problem reporting, and change management are examples of guideline elements that may be required on fixed-price contracts.

c. The Guidelines are not applicable to managing and operating (M&O) contractors performing normal site operation functions; however, the Guidelines are applicable to project work performed by M&O contractors.

10. RESPONSIBILITIES AND AUTHORITY.

a. Director of Procurement, Assistance and Program Management, through the Associate Director of Program/Project Management and Control, shall:

(1) Define and update the Guidelines and other documentation, and develop the policy for guideline use and application.

(2) Provide assistance on application and interpretation of problems encountered during compliance reviews.

(3) Review and concur with the DOE Field Office or PSO Project Control System Guideline Implementation Plan.

(4) Participate in compliance reviews for MSAs and concur with review findings and recommendations.

(5) Develop and provide implementing clauses and procurement regulations for use in solicitations and contracts.

(6) Monitor compliance with this Notice throughout the Department.

(7) Approve technical training courses developed by the Director of Professional and Technical Training and Development for implementation of this Notice.

(8) Establish and chair a PCS Advisory Team as the focal point for interpretation and application of the Guidelines.

b. Director of Administration and Human Resource Management, through the Director of Professional and Technical Training and Development, shall develop and conduct training courses for implementation of this Notice and the Guidelines, within the framework of the Departmental training program.

c. Lead Program Secretarial Officer shall:

(1) Ensure development of a Project Control System Guidelines Implementation Plan for the cognizant DOE Field Office.

(2) Coordinate Implementation Plan concurrences with other PSOs responsible for projects managed by the DOE Field Office and coordinate Implementation Plan concurrences with the Office of Procurement, Assistance and Program Management.

(3) Participate in compliance reviews at their respective DOE Field Offices.

d. Program Secretarial Officers With Projects Managed Through DOE Field Offices, shall:

(1) Review and concur with DOE Field Office Implementation Plans.

(2) Review and concur with the M&O contractors' and other DOE prime contractors' project control systems.

(3) Participate in reviews of contractor systems.

(4) Concur with project manager recommendations for extent of Guidelines application that contractors will be required to implement for their MSAs and MPs.

e. Managers of DOE Field Offices shall:

(1) Designate a primary responsibility organization to prepare and maintain an overall Project Control System Guidelines Implementation Plan covering all projects managed within the field element and monitor adherence to the plan. The plan will specify the extent of Guidelines application for all projects using a risk-based, graded approach.

(2) Coordinate with the cognizant PSOs and the Office of Program/Project Management and Control to update the Implementation Plan, as necessary.

(3) Chair the contractor system compliance review and provide personnel for participation on the review. Notify the cognizant PSO and the Office of Program/Project Management and Control of the compliance review.

(4) Incorporate Guidelines implementation requirements into existing contracts, new contracts, and solicitations as appropriate. Provide prospective contractors with information on Guidelines' requirements. After contract award or modification of existing contracts, conduct compliance reviews of contractor project control systems in accordance with a plan and schedule agreed upon between the PSO, the

DOE Field Office, and the Office of Program/Project Management and Control. Plans and schedules for incorporating the Guidelines into existing contracts shall be included in Implementation Plans.

(5) Obtain PSO and Office of Program/Project Management and Control concurrence for MSA contractors' project control systems acceptance following compliance reviews; and for other projects, program office concurrence for other contractors' project control systems following compliance reviews.

(6) Assure that the Project Management Plan or other documentation, as appropriate, is the basis for Guidelines implementation.

(7) PSOs managing projects not managed through a DOE Field Office shall perform the functions in paragraph 10e(1) through (6), above.

f. Project Managers shall:

(1) Identify the degree of applicability of guideline elements to their particular project and selected contracts therein, and forward recommendations to the DOE Field Office and PSO, as required, prior to the compliance review and participate in the compliance review process, as appropriate.

(2) Prepare a Project Management Plan using the work breakdown structure and the technical, schedule, and cost baselines as the basis for Guidelines implementation.

(3) Specify the frequency of reporting and establish variance analysis thresholds for effective management.

(4) Develop project-specific procedures for use and allocation of contingency, as required.

(5) Provide written comments or findings to the contractor for clearly established management action and resolution following the review of the system description and functional appraisal and notify the contractor when findings have been satisfactorily resolved.

BY ORDER OF THE SECRETARY OF ENERGY:

DOLORES L. ROZZI
Director of Administration
and Human Resource Management

DEFINITIONS

1. ACCOUNT STRUCTURE. A formal organization of accounting codes used to collect costs for control account work which provides needed information, segregated as necessary, for reporting costs.

2. ACTUAL COST. The Actual Cost of Work Performed (ACWP) is the cost incurred and recorded in the accounting system for accomplishing the work performed within a specific time period.

3. AUTHORIZED WORK. Work that has been definitized and is included in the contract value as well as work that has been authorized in writing, but contract value has not been determined and agreed.

4. BASELINE. A quantitative expression of projected technical, schedule and cost base, or standard for measurement during the performance of an effort; the established plan against which the status of resources and the objectives of a project can be measured.

5. BUDGETED COST. The Budgeted Cost of Work Scheduled (BCWS) is the sum of budgets for all control accounts for work scheduled to be accomplished within a given time period.

6. CHANGE CONTROL. A documented process applying technical and management review and approval of changes to technical, schedule, and cost baselines.

7. COMPLIANCE REVIEW. An assessment of the contractor's project management control system. The assessment normally occurs in two steps: a. The contractor submits a description of its management control system to the Department of Energy (DOE) for review against specific applicable Project Control System Guidelines and the DOE Field Office or Program Office Implementation Plan; and b. A review team conducts a functional analysis of the contractor's system to determine adherence to the published description and integrity of contractor data.

8. COMPLIANCE REVIEW CHAIRMAN. The Chairman is normally a DOE Field Office or PSO representative. The Chairman is responsible for day-to-day activities. Typical activities include planning and scheduling the review, organizing and leading the review team, resolving identified system discrepancies with the contractor, and preparing the review report.

9. COMPLIANCE REVIEW TEAM. A team representing the DOE Field Office organization or PSO, as appropriate which evaluates a contractor's project control system.

10. CONTINGENCY. An amount of budget to cover costs that may result from incomplete design, unforeseen and unpredictable conditions, or uncertainties. Contingency is controlled by DOE and not included in the performance measurement baseline.

11. CONTROL ACCOUNT. The management control point at which actual costs are accumulated and performance determined. It represents the defined work assigned to one responsible organizational element for the lowest level work breakdown structure element and must contain the specific scope of work, definite schedule, assigned budget, unique identification and method of measuring performance. The control account concept is applicable to all projects; large projects may have a series of control accounts which may be divided into work packages and planning packages, if desired; small projects may have only one control account consisting of a single charge number.

12. COST BASELINE. A budget that has been developed from the cost estimate made at approval of the technical baseline, and the majority of the budget has been time-phased in accordance with the project schedule. The cost baseline is referred to as a baseline since it is integrated with the technical and schedule baselines and subject to formal change control. The cost baseline normally contains direct and indirect budget; management reserve budget; undistributed budget and higher level budgets; contingency amount; and amount for fee, as appropriate.

13. DIRECT COST. Any cost that is specifically identified with a particular project or activity, including salaries, travel, equipment, and supplies directly benefiting the project or activity.

14. EARNED VALUE. The value of completed work expressed in terms of the budget assigned to such work. Also referred to as the Budgeted Cost of Work Performed (BCWP).

15. ESTIMATE AT COMPLETION (EAC). The actual cost incurred to date plus the estimated cost (direct and indirect) of all remaining work, including authorized work that has not been definitized.

16. FUNCTIONAL APPRAISAL. An on-site review of the use and effectiveness of a contractor's project control system whereby system deficiencies are noted and recommendations made for corrective action.

17. GRADED APPLICATION. A flexible selection process that enables the project manager to include or omit individual guideline elements and, within elements, choose a less rigorous application. This flexibility allows tailoring the project control needs to the specific project or contract, considering risks and complexities of the project. For example, the guideline element, "Planning and Scheduling," for a complex Major Systems Acquisition (MSA) may require multi-level, critical path, logic based schedules, as compared to a simple Gantt chart with a completion milestone for a small General Plant Project.

18. INDIRECT COST. The cost incurred by an organization for common or joint objectives which cannot be identified specifically with a particular project or activity.

19. INTERFACE POINT. The functional, physical, or system characteristics at a common boundary between two or more project participants.

20. LEAD PROGRAM SECRETARIAL OFFICER (Lead PSO). The PSO assigned line management responsibility and accountability for Headquarters and field operations and to which one or more multi-program DOE Field Offices report directly.

21. LEVEL OF EFFORT (LOE). Support effort that cannot be measured in terms of discrete accomplishment. LOE is characterized by a sustained rate of activity for a specific period of time.

22. MANAGEMENT RESERVE (MR). That portion of the contract or project budget controlled by the contractor for management purposes and not designated for the accomplishment of specific tasks; when MR is used it is distributed to specific accounts.

23. ORGANIZATIONAL BREAKDOWN STRUCTURE (OBS). The hierarchical arrangement for a company's management organization, graphically depicting the reporting relationships. Normally, the OBS is limited to showing only managerial positions, but may depict lower organizational levels. The structure may also show subcontract relationships depending upon the purpose of the OBS.

24. PERFORMANCE MEASUREMENT BASELINE (PMB). The total allocated budget less management reserve. It is the time phased budget plan against which contract performance is formally measured. The performance measurement baseline includes budgets assigned to control accounts and undistributed budgets.

25. PROJECT. A unique major effort within a program which has firmly scheduled beginning, intermediate, and ending date milestones; prescribed performance requirements, prescribed costs; and close management, planning, and control. A project is a basic building block in relation to a program which is individually planned, approved, and managed. A project is not constrained to any specific element of the budget structure (e.g. operating expense or plant and capital equipment). Construction, if required, is part of the total project. Authorized, and at least partially appropriated, project will be divided into three categories: MSAs, Major Projects, and Other projects.

26. PROJECT CONTROL SYSTEM. The planning, scheduling, budgeting, estimating, work authorization, cost accumulation, performance measurement, reporting, change control, and other systems used by a contractor to plan and control the work.

27. PROJECT CONTROL SYSTEM GUIDELINES. DOE established characteristics that contractors' internal management control systems must possess to assure effective planning, management, and control of projects and contracts.

28. PROJECT CONTROL SYSTEM GUIDELINES IMPLEMENTATION PLAN. A DOE Field Office or PSO plan for implementing the Project Control System Guidelines. The plan includes implementation policy, describes the graded application of guideline elements to projects and contracts, delineates responsibilities, and outlines the compliance review process.

29. PROJECT RISK. A factor, element, constraint, or course of action on a project that introduces an uncertainty of outcome and the possibility of technical deficiencies, inadequate performance, schedule delays, or cost overruns which could impact a Departmental mission. Evaluation of project risk must consider the potential impact and the probability of occurrence.

30. SCHEDULE BASELINE. The time phased plan with a logical sequence of interdependent activities, milestones and events necessary to complete the project. The schedule baseline shall be formally changed during the execution of the project when required.

31. TECHNICAL BASELINE. A configuration identification document or set of documents formally designated and approved by DOE. The Conceptual Design Report (CDR) will become the initial project technical baseline. The initial technical baseline, plus DOE approved changes to that baseline, constitutes the current technical baseline.

32. TOTAL ALLOCATED BUDGET (TAB). The sum of all budgets allocated to the contract or project, as applicable. Total Allocated Budget consists of the performance measurement baseline plus management reserve.

33. TOTAL ESTIMATED COST (TEC). The budgeted costs for land, design, construction, equipment, escalation and contingency for a given project. For further clarification, see DOE 4700.1.

34. TOTAL PROJECT COST (TPC). The cost of the project including all of the TEC, the cost of all preliminary design, conceptual engineering, research and development, project support for a given project, and the cost of transition to operations. For further clarification, see DOE 4700.1.

35. UNDISTRIBUTED BUDGET (UB). Budget within the performance measurement baseline applicable to the work effort that has not yet been identified to both a responsible organization and a WBS element.

36. VARIANCE. The difference between planned and actual performance. Variances that exceed established thresholds normally require further review, analysis or action. Established thresholds should be revised during the life of a project to ensure meaningful analysis.

37. WORK AUTHORIZATION. A contractor's internally documented process or system that ensures work is properly authorized and assigned at the appropriate organizational levels prior to beginning the work.

38. WORK BREAKDOWN STRUCTURE. A multi-tiered framework which organizes and graphically displays elements representing work to be accomplished in logical relationships. The WBS may or may not be product-oriented; orientation may be towards products, project phases, key decision points, various budgeting units of measure, e.g. activity data sheets, or a combination. The WBS should be organized such that each element can be estimated, scheduled, budgeted, and work progress reported.

39. WORK PACKAGE. Subdivisions of the lowest level WBS element accorded detailed scope, schedule (start and completion points), budget, a description of scope (including activities) and responsible manager.

PROJECT CONTROL SYSTEM GUIDELINES

1. GENERAL.

   a. The project control systems used by contractors in planning and controlling the performance of their contract work shall meet the Guidelines set forth in this attachment as directed by the Contracting Officer. The Guidelines contained herein are the basic requirements. The specific Guidelines and Guidelines elements applicable to a contract or project will be as determined by Department of Energy (DOE). Nothing in these Guidelines is intended to affect the basis on which costs are reimbursed and progress payments are made, and nothing herein will be construed as requiring the use of any single system, or specific method of management control or evaluation of performance.

   b. For contractors responding to a solicitation to perform project work, an element in the evaluation of proposals will be the offeror's systems for planning and controlling contract performance. The offeror will fully describe the system to be used. The system described in the proposal will be evaluated to determine whether it meets the necessary project management control Guidelines promulgated by this notice.

2. PROJECT CONTROL SYSTEM GUIDELINES (GUIDELINES). The Guidelines are divided into three categories: baseline development, project performance, and change management

   a. Baseline Development. This category includes management actions necessary to define project scope and responsibilities, establish baselines, and plan the project.

      (1) Technical Baseline and Work Scope Definition.

         (a) Objective. To structure the project's technical work to ensure defined objectives are achieved. Establish the framework to integrate all elements of the Guidelines.

         (b) Elements.

            1 Establish and maintain the approved project technical baseline (work scope typically established in the Conceptual Design Report) in a manner that ensures it is subject to formal change control.

            2 Define all authorized project work in a Work Breakdown Structure (WBS) that represents the way the work will be estimated, scheduled, budgeted, performed and managed. Maintain the

WBS to be consistent with project needs throughout the life of the project, ensuring changes to the WBS are made within a formal change control process.

(2) Roles and Responsibilities.

(a) Objective. To identify all the project's participants, their responsibilities, and the role each performs on the project.

(b) Elements.

1 Clearly identify, utilizing an Organizational Breakdown Structure (OBS) approach, to the control account level, each manager responsible for all project work. In addition, identify their functional and technical scope responsibilities, their limits of authority, and interface points with other project participants.

2 Identify the persons with the authority and responsibility for controlling indirect costs.

3 Perform control account management at the level consistent with management responsibilities, organization structure and the contractor's commonly accepted practices.

4 Ensure that each control account is assigned to a person who has the authority and responsibility to control the resources and work activities within the written technical, schedule, and cost baselines.

5 Ensure that the control account and the schedule status are recorded on a timely basis to maintain current period, cumulative-to-date and at-completion records.

6 As early as practical throughout the performance of the project, ensure that each control account is assigned to a specific project participant manager or subcontractor manager who will be responsible for the planning and control of the work scope comprising that account.

(3) Cost Estimating.

(a) Objective. To place emphasis on cost estimating as an integral and key aspect of baseline budget development, emphasize the importance of accurate estimates-at-completion, and retain the separation of expense and capital monies.

(b) Elements.

1 Prepare cost estimates using appropriate estimating methodologies that are integrated with the WBS, and the DOE cost structure as specified by the DOE, for all contract work. Ensure that all estimates are consistent with DOE 5700.2D and in accordance with FAR 15.804, "Cost and Price Data Analysis," as applicable.

2 Prepare estimates, as applicable, in accordance with established project phases, maintaining a distinction between Total Estimated Cost and Total Project Cost. Maintain an appropriate cost estimating capability to accommodate project estimates-to-complete and estimates-at-completion.

(4) Planning and Scheduling

(a) Objective. To ensure that all known requirements affecting a project are identified and considered in the development of project baselines; ensure visibility of critical path activities and DOE milestones; and ensure that all project work is scheduled using a disciplined approach, and properly integrated with other guideline elements.

(b) Elements.

1 Ensure that a process is established and is in operation throughout the project life to identify programmatic, operational, legislative, institutional, and other requirements or constraints which may affect technical, cost, or schedule baselines and ensure that such baselines properly reflect such potential impacts.

2 Develop schedules that integrate with the WBS and cost estimate, and represent all work scope regardless of funding source. Use activity

logic to depict all work scope, constraints, and decision points. Estimate and assign durations to activities representing work accomplishment.

3 Establish an approved schedule baseline which clearly depicts critical path activities and milestones from which actual performance for all activities and milestones can be compared, and from which forecast data can be generated. Resource-load activities, as required and at the appropriate level, to develop time-phased budgets that are integrated with the schedule. Permit only authorized changes to the schedule baseline.

4 Summarize the detail schedule activities to form master and intermediate level schedules as required. Maintain identification of milestones with appropriate schedule levels.

(5) Cost Baseline.

(a) Objectives.

1 To ensure that an account structure is established to collect costs against specific scopes of work, and to measure performance;

2 To ensure that budgets for labor, services, subcontracts, and materials are established at the proper levels and time phased in accordance with the project schedule;

3 To ensure that the TPC is accounted for within the system; and

4 To ensure that the project direct costs and indirect costs are identified and managed.

(b) Elements.

1 Develop a control account structure that is integrated with the WBS, and facilitates collection of expense and capital costs, by organization and cost element as appropriate. Establish and implement a process for controlling the opening and closing of control accounts for the life of the project.

2 Identify, in each control account, the work scope for that account. Establish a budget for the work, ensuring the budget is time phased in accordance with the schedule baseline and the availability of resources. Ensure the control account budget basis is reconcilable with the cost estimate and subsequently approved revisions

3 Ensure that all work is represented in control accounts, and the sum of all control account budgets, plus contingency, and management reserve and fee, equals the TPC or contract value, as appropriate. Ensure that budget values used for planning purposes, that are not included in the approved project baseline, are identified as such.

4 Establish a practical and effective method of measuring performance in the control account prior to beginning work. Maintain continuity of the measurement method throughout the life of the control account. Ensure that values used for performance determinations are verifiable and consistent with schedule performance.

5 Establish and maintain an auditable system for the development, maintenance, analysis and control of indirect budgets and costs.

6 When a management reserve is established, ensure that procedures are in place to control its establishment, use, and replenishment.

b. Project Performance. This category includes management actions after work commences that are necessary to monitor project status, report and analyze performance, and manage risk.

(1) Funds Management.

(a) Objective. To provide a process that integrates the management of funds with other guideline elements, and ensures that funding impacts are reflected in project or contract baselines as appropriate.

(b) Elements.

1 Ensure that the commitment and expenditure of funds will not exceed the authorized limits. Provide early warnings that funding limits are about to be exceeded.

2 Evaluate the impact of changes to planned funding limits and, in turn, on technical, cost, and schedule baselines, and ensure that such impacts are appropriately reflected in changes to the baselines.

3 Maintain the ability to reconcile between forecasts for funding requirements and estimates for costs to execute project work.

(2) Accounting.

(a) Objective. To ensure the proper utilization of accounting data in baseline management.

(b) Elements.

1 Record on a timely basis, at the control account level, the actual direct costs which have been incurred for resources applied in the performance of work Ensure that such cost assignments are made in accordance with a formal system that is controlled by the general books of accounts.

2 Ensure that actual costs are applied in the same accounting period that performance is measured and recorded

3 Consistent with Federal Acquisition Regulations, Department of Energy Acquisition Regulations, and other applicable regulations, record and apply all indirect costs that are allocated to the project

4 Where allocations of direct costs must be made from a single collection point to multiple control accounts, substantiate the basis for such allocations.

5 Correct mischarges and other accounting errors in a timely manner.

(3) Work Authorization.

(a) Objective. To ensure that after the work is sufficiently defined, organized, and planned, the resulting control account is authorized by the appropriate level of management before the task is executed.

(b) Element. Establish and maintain a work authorization process which authorizes the expenditure of resources against baselines; prevents the expenditure of resources for work or procurement without appropriate plans and approval at the appropriate level of management; terminates authority when funding limits or other limits of authority or constraints would be exceeded; and prevents the expenditure of funds for unauthorized work or procurement.

(4) Performance Analysis.

(a) Objective. To determine project status by analyzing technical, schedule, and cost performance considering potential problems, their impact, and alternative courses of action

(b) Elements.

1 On a periodic basis, identify significant differences between planned and actual cost, schedule and technical accomplishments and revise project forecasts, as appropriate.

2 Use an accepted and documented performance measurement process to determine actual technical, schedule, and cost performance, identify problems encountered, the reasons for such problems, and any impacts and corrective action required.

3 Periodically, ensure that the validity of estimates-at-completion (EACs) are evaluated and revisions generated as required. The EAC must represent a realistic appraisal of the final cost of defined increments of work and undefined potential factors affecting final cost summarized to the total project level.

(5) Reporting.

(a) Objective. To communicate timely, accurate periodic progress reports in the formats and reporting levels stipulated by DOE to the appropriate management level which will enable analysis, evaluation, and corrective action of technical, schedule and cost performance against the approved baselines.

(b) Elements.

1 Provide narrative status reports, including problems, technical and physical progress, performance objectives, schedule status, and cost performance that includes the contractor project manager's summary assessment of progress commencing at KD1 or project start.

2 Provide schedule status reports that include critical path visibility and progress against the baseline. The reports must present status of DOE controlled milestones and provide current forecast dates. Status, including early or out of cycle reporting, is to be issued as required in response to an occurrence that unfavorably affects the project progress.

3 Provide cost status reports, including both direct and indirect costs, that provide current period, cumulative and estimate-at-completion costs reported against the time phased cost plan.

4 Provide labor status reports that provide current period, cumulative and estimate-at-completion hours reported against the time phased labor plan.

5 Provide problem reporting that presents the significant issues or concerns of the project manager, with proposed corrective actions. Any problem or issue requiring Government action must be reported. Items reported must be maintained on the report until satisfactorily resolved

6 Provide a baseline change status report that presents the status of changes affecting the contract or project as appropriate.

7 Develop predetermined thresholds that prescribe which variances, issues and problems are significant and warrant a detailed analysis of the causes and actions taken to alleviate the problem.

8 Provide visibility of project technical, schedule, and cost risks through the narrative status report addressing contract claims, impacts from new or revised DOE Orders or

requirements, environmental, safety and health concerns, or other probable high impact risk areas.

9 Provide trend charts that graphically display meaningful performance measurement data against the approved baselines. The charts must address technical performance, schedule, labor, and cost as a minimum.

c. Change Management. This category includes management actions necessary to ensure adequate control of project baselines, including the performance measurement baseline.

(1) Objective. To establish and maintain a timely, formal process for managing and administering changes to the approved technical, cost and schedule baselines with rebaselining occurring only when necessitated by significant, unrecoverable project delays, events, or other impacts.

(2) Elements.

(a) Assure the technical, schedule, and cost baselines and established change control thresholds are clearly defined, documented and approved by DOE;

(b) Assure that baseline changes and thresholds are defined, documented and approved, and authority and responsibilities for such approval are documented;

(c) Assure that timely decisions are made at the appropriate management level;

(d) Prohibit retroactive changes to cost and schedule performance data except to correct errors;

(e) Designate allowable change processing time frames consistent with the level of change authority requested and urgency required; and

(f) Coordinate baseline replanning actions with the DOE project manager prior to the occurrence.