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Headquarters Defense Contract Audit Agency Cameron Station, Alexandria VA 22304-6178	DCAA PAMPHLET 7641 47

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GUIDE
to
Cost/Schedule Management

Purpose: This guide provides the uniform procedures which have been approved by AFMC, ASA(RDA), ASN(RD&A), BMDO/PO, DLA, and DCAA to be used during the implementation and surveillance of Cost/Schedule Integrated Management Systems established in compliance with the Cost/Schedule Control Systems Criteria (C/SCSC). Users of this guide are encouraged to submit recommendations for refined procedures, through channels, to appropriate government component focal points.

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Supersedes AFSCP/AFCC/AFLCP 173-5, AMC-P 715-5, NAVSO P3627, DLAH 8400.2, DCAA P7641.47 dated 1 Oct 1987. and AFSCP/AFLCP 173-6, AMC-P 715-10, NAVMAT P5243, DLAH 8315.1, DCAAP 7641.46 dated 1 October 1984 (See signature page for summary of changes.)

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Chapter 1

Earned Value Management

1-1. Concepts of Earned Value Management:

1-1.a. Management Needs. A fundamental requirement of the acquisition and/or modification of major systems is visibility of contractors' progress for program management purposes. The implementation of an earned value management system on selected contracts within applicable government programs ensures the customer receives and reviews contractor cost and schedule performance data which:

(1) relate time-phased budgets to specific contract tasks and/or statements of work;
(2) indicate work progress;
(3) properly relate cost, schedule and technical accomplishment;
(4) are valid, timely, and auditable;
(5) supply managers with information at a practical level of summarization;
(6) are derived from the same internal integrated management systems used by the contractor to manage the contract.

1-1.b. Management Systems. Integrated cost/schedule management systems, structured in accordance with proven management concepts, provide earned value information useful to both contractor and Government Program Managers (PMs). In designing, implementing and improving the integrated management system, the principle should be to do what makes sense. The management system that meets the letter of the criteria but not their intent will not support management's needs. Integrated management systems that comply with the intent of the C/SCSC will facilitate:

(1) thorough planning;
(2) timely baseline establishment and control;
(3) information broken down by product as well as by organization or function;
(4) objective measurement of accomplishment against the plan at levels where the work is being performed;
(5) summarized reporting to higher management for use in the decision-making process;
(6) reporting discipline;
(7) analysis of significant variances; and,
(8) the implementation of effective corrective actions.

These are all inherent features of a good integrated management system

1-1.c. Criteria Concept. No single integrated management system can meet every management need for performance measurement. Due to variations in organizations, products, and working relationships, it is not feasible to prescribe a universal system for cost and schedule control. The government approach simply defines the criteria that contractors' integrated management systems must meet. The Cost/Schedule Control System Criteria (C/SCSC) (Appendix G) provide the basis for determining whether contractors' integrated management systems are acceptable. The criteria are general in nature to facilitate their use in the evaluation of contractors' integrated management systems for development, construction, and production contracts. Since these types of contracts tend to differ significantly, it is impossible to provide detailed guidance that will apply specifically in all cases. Users of the criteria should, therefore, make appropriate interpretations. Base the use of the criteria on common sense, which means that the interpretations must be practical, as well as sensitive to the overall requirements for performance measurement. The procedures described in this document provide a basis to

assist the government and the contractor in assessing the acceptability of integrated management systems in response to the criteria. The basic purpose is to ensure that the contractor has in place, uses, and maintains an adequate cost and schedule control system that provides reliable contract status.

The C/SCSC concept does not describe a system! It is a set of criteria that define the framework within which an adequate integrated cost/schedule management system will fit. The criteria do not purport to address all of a contractor's needs for day-to-day or week-to-week internal control, such as informal communications, internal status reports, reviews, and similar management tools. These management tools are important and are not intended to be replaced by C/SCSC requirements. Good management philosophy, however, dictates that these internal tools should mesh with the integrated cost/schedule management system and form the basis for effective program management by both the contractor and the government.

The objectives of C/SCSC are for contractors to manage using effective internal cost/schedule integrated management systems, and for the government to be able to rely on timely and auditable data produced by those systems for determining product-oriented contract status. Both objectives are essential. Government managers should recognize, however, that effective management by the contractor normally does not require product-oriented cost reporting, (such as is shown on Format 1 of the Cost Performance Report (CPR)), in addition to cost reporting by contractor organization, (as shown in Format 2 of the CPR). On the other hand, contractors should recognize the government's need for product-oriented information on contracts that involve substantial cost risk to the government. Differences arising from these divergent needs, such as the level of reporting detail required, should be discussed during contract negotiations. While the criteria are not subject to negotiation, many problems concerning timing of C/SCSC implementation and related reporting requirements can be avoided or minimized through negotiation.

1-1.d. System design and development.

(1) The responsibility for developing and applying the specific procedures for complying with these criteria is vested in the contractor. The proposed integrated management system is subject to government acceptance. In instances where the contractors' system does not meet the intent of the criteria, adjustments necessary to achieve compliance will be required of the contractor by the procuring activity.

(2) Contractors have flexibility under the criteria approach to develop a system most suited to management needs. This approach allows contractors to use integrated management systems of their choice, provided they meet the criteria. Integrated management systems that range from fully manual processes to totally automated (paperless) systems have been validated by the government. Contractors are encouraged to establish and maintain innovative, cost effective processes and to improve them continuously

(3) When the solicitation document, e.g. request for proposal, request for quotation, etc., specifies application of the criteria, an element in the evaluation of proposals will be the prospective contractor's proposed system for planning, controlling and reporting contract performance. The prospective contractor will describe the systems to be used in sufficient detail to permit their evaluation for compliance with the criteria. A discussion of both government and contractor activities during the period prior to contract award is contained in Chapter 2, Pre-contract Activities.

(4) Upon award of the contract, the integrated management system description will be the basis upon which the contractor will demonstrate to a government review team its application in planning and controlling the contract work. The government relies on the

contractors' systems when they are accepted and does not impose duplicative planning and control systems. This approach permits a wide variety of equally effective ways for contractors to meet the criteria. Contractors having systems previously accepted are encouraged to maintain the essential elements and disciplines of the systems if they intend to remain in the competitive environment for government contracts involving large acquisition programs. Chapter 3 contains a discussion of the criteria and their relationship to management processes. To meet the requirement of the applicable Federal Acquisition Regulation (FAR) clause, for example Defense Federal Acquisition Regulation (DFAR) 252.234-7001 (Appendix A), the proposed system description should describe the contractor's management processes as they relate to the criteria discussion in Chapter 3 of this guide. (See paragraph 2-4b)

(5) Typical points of contention between the government and industry concerning C/SCSC implementation include: (a) time required to implement; (b) levels designated for management and reporting; (c) variance analysis thresholds; and (d) system discipline requirements. These are not a direct result of the criteria, but can affect the cost of implementing and operating an approved integrated management system. The cost of C/SCSC, sometimes perceived to be excessive, has defied quantification due to the difficulty in separating the incremental cost of C/SCSC from the normal management costs that would have been incurred in any case. There is no dispute, however, that improper implementation imposes an unnecessary financial burden on the contractor and the government.

1-1.e. Conclusion. The criteria approach ensures that contractors have and use adequate cost and schedule integrated management systems. This approach also provides better overall planning and control discipline on government contracts. The associated cost performance reports (CPRs) summarize objective data from contractors' internal systems for contractor and government managers. The criteria and associated reporting requirements have proved their value over many years. Substantive improvements in management can be achieved by senior management and the program manager taking accountability for system effectiveness and use. A C/SCSC-compliant system ensures that valid cost and schedule performance data provide the manager with an effective tool for decision making.

1-2. Joint Participation. While the procuring activity is responsible for ensuring implementation of the criteria, successful application requires the participation and coordinated efforts of various government components. The principal points of contact among government components for implementation of the criteria are identified in Chapter 4. The primary functions of the representatives participating are also described. Procedures for planning and conducting demonstration reviews of contractor integrated management systems are detailed in Chapter 5, Demonstration Reviews.

When there is to be a review of a subcontractor's system, the prime contractor must play an active role in the process. The legal/contractual relationship is between the prime and the subcontractors. When a review is to be coordinated or conducted by a prime contractor, the focal point for the government component under whose jurisdiction the program falls will be notified of review activities. In those cases where conflicts of interest, proprietary data, or other factors are involved, the government may be requested to perform all aspects of the subcontractor review. This request may come from either the prime or the subcontractor.

1-3. Appeals. Differences in interpretation of criteria application between government personnel and the contractor sometimes arise during the demonstration process. Those disputes which cannot be resolved may be appealed to the appropriate focal point for resolution. If the difference involves contractor system applications concerning more than one government component, the appeal may be directed to the Performance Measurement Joint Executive Group (PMJEG) for resolution. The composition of the PMJEG is covered in Chapter 4, paragraph 4-2d. Either a government or a contractor representative may initiate an appeal. Participants in the appeal have the opportunity to provide appropriate rationale, exhibits, discussion, etc., as required to support the positions. Pending resolution of appeals, the C/SCSC review team should continue to complete the assessment of the contractor's compliance with the criteria or the contractor's system description as appropriate.

1-4. Maintenance and Improvement. Following system approval, contractors are required by contractual clause to maintain and use the approved system. Chapter 6 and Appendix C of this guide discuss the Advance Agreement which is used to establish a process designed to ensure use and maintenance of the approved system. In addition, every opportunity should be taken to implement process improvements and to continually seek to enhance the integrated management system's usefulness to the program managers. Procedures for updating system descriptions and processing changes for approval are contained in Chapter 6. Procedures for conducting reviews of previously accepted systems are contained in Chapter 7.

1-5. Withdrawal of Acceptance. When a contractor fails to fully maintain a previously approved system and will not take actions to restore it to compliance with the criteria, a government component may consider withdrawing or suspending approval of the contractor's management system. When such a situation occurs, the government component will advise the contractor through the cognizant Contract Administration Office (CAO) that (a) the acceptance is in jeopardy and (b) the contractor must "show cause" within a reasonable period of time why the certification of the integrated management system should not be withdrawn and contractual remedies should not be invoked. The other government component focal points will be advised at the same time. If the contractor disagrees with the government component's position and the contractor's systems application concerns more than one government component, the contractor may appeal to the PMJEG. If the contractor does not respond satisfactorily or fails to appeal to the PMJEG (if appropriate), the government component may withdraw or suspend the system acceptance after coordination with the other government component focal points. Advance Agreements signed between the contractor and the government are also invalidated by this action. Finally, when an acceptance has been withdrawn or suspended, the contractor may not claim to have an approved system until a new Letter of Acceptance or Certificate of Validation has been issued. This is usually following a redemonstration by the contractor of the corrected integrated management system.

1-6. Uniform Guidance. This document provides uniform guidance for the military departments, defense agencies, and other government agencies responsible for evaluating and surveilling the implementation of Cost/Schedule Integrated Management Systems (IMS). It uses the concepts contained within the Cost/Schedule Control Systems Criteria (C/SCSC) as defined in DoD Instruction 5000.2, Part 11, Section B, Contract Performance Measurement. The contents of this guide were developed jointly by DoD, FAA and NASA.

Within this guide the term "criteria" is synonymous with "C/SCSC." The term "performance" means "cost/schedule performance".

1-7. Revisions and Additions. Persons using this guide are encouraged to submit suggestions for improvements to appropriate focal points identified in Chapter 4. Proposed revisions from outside agencies should be sent to AFMC/FMC, 4375 Chidlaw Road, Suite 6, Wright-Patterson AFB OH 45433-5006. Proposed revisions from within DoD should be properly coordinated and approved prior to submission.

Chapter 2

Pre-contract Activities

2-1. General Information. This chapter provides the policy and general guidance for pre-contract activities associated with earned value management in preparing a Request for Proposal (RFP), in conducting Source Selection Activities, and preparing a contract. Tailor this general guidance to meet the individual needs of a specific program. The Program Manager (PM) must be involved in evaluating the management system and reporting requirements on the contract and be an active user of the information contained in the resulting reports. The PM tailors reporting requirements based on informed knowledge of available choices and a realistic assessment of the management information needs for effective program control. The C/SCSC matrix support organizations can provide assistance in making these determinations.

2-2. Policy. The PM, in structuring contract requirements, must ensure that only the minimum information required for effective program management is requested. Management system requirements are defined in the contract Statement of Work (SOW) and in the applicable Federal Acquisition Regulation (FAR) clauses. Government reporting requirements are specified separately in the contract. This is accomplished through the use of a form similar to the Contract Data Requirements List (CDRL) (DD Form 1423) used by the DoD. These requirements should be contained in both the solicitation document and in the contract itself.

2-2.a. Government Requirements. Unless waived by the Milestone Decision Authority (MDA) or a designated representative, compliance with the C/SCSC is required on significant contracts and subcontracts within all acquisition programs. These include highly sensitive classified programs and major construction programs, significant contracts executed for foreign Governments and specialized organizations such as Advanced Research Projects Agency, and significant acquisition effort performed by government agencies.

2-2.b. Government Component Thresholds. Significant contracts are defined as RDT&E DoD contracts and subcontracts with a value of $60 million or more and production contracts and subcontracts with a value of $250 million or more (in fiscal year 1990 constant dollars). Other government agencies have similar policies but have established different thresholds for the application of the criteria. Application of C/SCSC to contracts and subcontracts below the mandatory levels is optional, subject to the policies of the cognizant government component and the criticality of the effort to the program.

2-2.c. Exceptions.

(1) Compliance with C/SCSC is not required on contracts or subcontracts that are firm-fixed-price (including firm-fixed-price contracts with economic price adjustment provisions), time and materials contracts, and contracts that consist of mostly level-of-effort work. Exceptions may be made by the MDA for individual contracts.

(2) There are other situations involving significant contracts where the application of C/SCSC may not be necessary. In such cases, the procuring activity will forward a request for waiver, prior to releasing the RFP, to the MDA (or designated representative) for approval. When waivers are granted, C/SCSC review activities will not be performed but contract cost performance reporting will still be required. This reporting will normally be provided via external performance measurement reports, e.g., the Cost/Schedule Status Report (C/SSR) or Cost Performance Report (CPR). Tailor these reports to meet specific program needs.

Examples of contractual situations where waivers of C/SCSC requirements will be considered are:

(a) Follow-on contracts within mature production programs which are not experiencing significant cost or schedule problems and where no significant changes to the product are anticipated.

(b) Contracts to acquire items directly from production lines which currently manufacture predominantly commercial products.

2-2.d. Acquisition Plan. A key document in the pre-contract phase is the Acquisition Plan. This details the process whereby the required hardware, software and/or services will be procured. The procuring activity should be careful to explain in the management section of this document the requirements for program management as they relate to cost, to schedule and to technical performance. Refer to the FAR, subpart 7.1.

2-3. Preparation of the RFP.

2-3.a. Basic Requirements. When it is determined that a contract will require an integrated management system that meets the Criteria, the appropriate clause will be included in the RFP (Appendix A). In addition to the clause, the management tasks need to be defined in the SOW, the preliminary Work Breakdown Structure (WBS) must be defined for the effort, and the contract data requirements must be generated and placed in the RFP.

2-3.b Work Breakdown Structure (WBS). The RFP must contain a preliminary WBS for the acquisition. This preliminary WBS should be structured in accordance with the guidelines established by the acquiring government agency. Guidance for DoD procurements, for example, is provided in DoDI 5000.2, Part 6, Section B, and MIL-STD 881 (latest version). The hardware, software and/or services that are being procured are defined in such a way as to provide useful information for program management purposes. This preliminary WBS is expanded by the contractor to reflect the manner in which the work will be accomplished on the contract and to facilitate management, data collection, and reporting.

The structure of the Contract Work Breakdown Structure (CWBS) is very important to the effectiveness of an integrated management control system. A poorly-structured CWBS can increase the cost of implementing and maintaining an IMS on a project. Exercise considerable care in its development.

(1) Before an RFP is released, the PM should ensure that a preliminary WBS has been developed for the contract. Contract line items should be included as separate WBS elements and the WBS should be aligned with the SOW to the maximum extent possible. The PM and the contractor should carefully evaluate the preliminary WBS reporting levels to ensure that only the minimum information necessary for effective management control is obtained. These requirements should be defined in a cost data reporting plan and included in the RFP.

(2) When submitting and negotiating proposals, contractors may propose alternatives to the WBS elements selected for the proposed contract in order to enhance the effectiveness of the CWBS for management and control of the project.

(3) CWBS reporting levels should be evaluated periodically and changed, if necessary, to ensure that they continue to satisfy the PM's needs. Proposed changes to the CWBS must be evaluated for possible conflict with previously approved cost reporting plans or the approved, program-level WBS.

2-3.c. Data Item Descriptions (DIDs). The CPR (or similar report) will be obtained by specifying the appropriate data item description. DI-F-6000 (latest revision) is listed in DoD 5000.19L, Volume II, Authorized Management Systems and Data Requirements Control List (AMSDL) AND may be obtained from the Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia PA 19120.

2-3.d. Contract Data Requirements List (CDRL). A DD Form 1423 (or its equivalent) referencing the CPR Data Item Description (DI-F-6000) will be included in the RFP. This form provides CPR preparation guidance, including reporting frequency, distribution, and tailoring instructions. The contractor's submission must comply with the DID, as modified by tailoring instructions. The use of electronic data interchange is mandatory and the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X-12 standard applies. This requires data transmissions to be made in a specified format in order to standardize software interfaces throughout the industry. Requirements to submit a CPR by electronic means will be included in the CPR CDRL. Suggested areas for report tailoring include:

2-3.d(1). Reporting level. The reporting level specified in the CDRL should be limited to CWBS level 3, except for high cost or high risk items. The PM should carefully evaluate the CWBS reporting levels selected for routine reporting to ensure that only the minimum necessary for effective management control is obtained. Reporting levels should be evaluated periodically and changed, as necessary, to ensure they continue to satisfy the PM's needs. It is not necessary for reporting levels in different legs of the WBS to be the same. For example, reporting in the Prime Mission Equipment leg of the WBS may be level four while reporting in the Training leg may be at level three. Management needs will determine the appropriate level.

2-3.d(2). Variance Thresholds. The basis for determining which variances will be analyzed is defined in the CDRL for the CPR. Any of the following approaches may be applied.

(a) The contractor will provide analysis of the top 3 to 10 (current or potential) most significant variances (regardless of dollar value) in a given period. The identification of the items to be analyzed should be done in a mutually agreed-upon listing that is periodically modified, or, it may be based upon the contractor's assessment of major risk areas as identified through the periodic management review process.

(b) The Government PM and the contractor will jointly determine CWBS and organizational elements that constitute high cost, schedule and/or technical risk on the contract. The contractor will provide analysis of these elements if they exceed pre-established cost or schedule thresholds. The identification of these areas should be periodically modified through mutual agreement between the government and the contractor PMs and their organizations.

(c) Explanations of variances are provided by the contractor after the numerical formats of the CPR have been provided to the government and those elements requiring explanation have been determined by the Government program management organization.

(d) All variances that exceed a certain percentage and/or dollar amount, i.e., all schedule variances that exceed plus or minus x% and plus or minus $x of the cumulative Budgeted Cost for Work Scheduled (BCWS), and all cost variances that exceed plus or minus x% and plus or minus $x of the cumulative Budgeted Cost for Work Performed (BCWP). All variances at completion that exceed plus or minus x% will be analyzed regardless of dollar amount.

Other variance analysis requirements may be established if the information gained is of value to the PM in the management of the contract.

The sequence of these suggested variance analysis techniques is established based on the expected quantity of variance analyses that will be generated. Technique (a) should cause the least amount of explanations to be generated for CPR Format 5 while technique (d) will most likely generate the most. The CDRL should provide that the variance requirements will be mutually assesses at least every six months and adjusted as necessary to ensure that useful analysis information will be performed.

2-3.d(3). CPR Format 3 & 4 Report Periods. The DID requires the contractor to complete CPR Formats 3 & 4, columns 10 through 14, by specified periods or periodic increments, as negotiated with the procuring activity. The CDRL should identify the PM's suggested report periods. For example, Formats 3 and 4 could contain baseline and manpower forecasts for three-month periods for two periods (cols 10 and 11), 12 month periods for the next two subsequent periods (cols 12 and 13), and the remainder of the contract for the last period (col 14). Other external performance measurement reports should provide similar information.

2-3.e Statement of Work (SOW) Task Descriptions. The following paragraphs are suggested SOW tasks for inclusion in the solicitation.

2-3.e(1). Contractor Cost and Schedule Reporting. The contractor shall provide periodic reports detailing the cost and schedule status of work progress on the contract. Technical issues and accomplishments shall be integrated into analysis of cost and schedule performance provided in required reports and as part of government/contractor meetings. The report format and contents shall conform with the requirements outlined in the CDRL. When electronic transmission of data is used, the Contractor shall provide this information in a format consistent with the applicable data set per the ANSI X-12 standard.

2-3.e(2). Subcontractor Cost and Schedule Reporting. Integrated cost and schedule reporting is required on subcontracts that, based on risk, schedule criticality or dollar value, have the potential to impact the successful completion of the prime contract. The Government and the contractor shall agree on which subcontracts require integrated cost and schedule reporting and whether full compliance with C/SCSC should be included in the subcontract.

2-3.e(3). Contract Work Breakdown Structure (CWBS). The contractor shall expand the Government provided preliminary WBS to represent how the contractor plans to accomplish the entire contract work scope and which are consistent with internal organizations and processes. This CWBS shall serve as the framework for contract planning, budgeting, and reporting cost and schedule status to the Government. Major elements of subcontracted work shall be identified in the CWBS. The contractor may propose changes to the preliminary WBS to enhance its effectiveness in satisfying program objectives. The contractor shall also prepare and deliver a CWBS Dictionary describing each element in its extended CWBS.

2-3.e(4). Program Management Reviews. The contractor shall organize the technical effort of the contract using a criteria-compliant integrated management system that correlates cost and schedule performance with technical progress. This information will be presented in periodic program management reviews. Technical issues will be covered in terms of the achievement of performance goals, exit criteria, schedule progress and/or cost impact.

2-4. Source Selection Evaluation Activities.

2-4.a. Proposal Submissions. When required by the RFP, each offeror's proposal shall include a description of the integrated management system to be used. Normally, the offeror would be expected to propose use of existing systems provided that they meet the Criteria. An offeror proposing to use an integrated management system previously accepted by the government may satisfy the system description requirement of the RFP by citing the Advance Agreement, Letter of Certification or Certificate of Validation.

2-4.b. System Descriptions. If the contractor proposes a system that has not previously been accepted by the government, the description of the contractor's integrated management system must be of sufficient detail to show how it complies with the Criteria. While the contractor's system description is not required to follow the flow and/or format of Chapter 3 and the Integrated Management System Evaluation Guide (Appendix E), it must address all applicable areas. Specifically, it shall:

(1) Describe the integrated management system and its application which encompasses all major organizational or product team areas. Unique aspects such as for manufacturing, material, and subcontract management should be included as they relate to development of the WBS, planning, budgeting, scheduling, work authorization, cost accumulation, measurement and reporting of cost and schedule performance, variance analysis and baseline control.

(2) Although not required to be part of the system description, the offeror may correlate evaluation guide areas with applicable portions of the system description, preferably by cross-referencing appropriate elements in the description of systems with the items in Appendix E.

2-4.c. Form of System Description. A contractor may elect to keep the system description general and rely on cross-referencing to internal procedures or policy manuals for a discussion of the details. In this case, the procedures and policy documents are to be referenced in, and considered a part of, the system description. In specific instances, only some portions of the referenced documents may be C/SCSC-related. In these cases, the contractor may make changes to the non-C/SCSC related portions of those documents without prior formal approval. This will require the contractor to establish a means of coordination so that the Government can be assured that C/SCSC related changes to the internal procedures and manuals are not made without prior approval.

2-4.d. Management Systems Software. Formal identification of third party commercial management systems software is not required in contractors' system description. The specific mention of software is not required, but it may be necessary to clearly identify and describe the computer application used to generate the data. The system description and procedures must adequately describe the elements of control and the techniques applied, such as earned value methods, used in the satisfaction of the criteria. The software used must implement these controls and techniques but may be modified or replaced as long as the processes are supported and not modified. This includes, for example, management subsystems' inputs, outputs, files, cost account and work package formats, earned value techniques and interfaces among those subsystems. It is permissible, however, to mention the name of such software in the system description, when the intent is to clarify and describe the capabilities as mentioned above, and thereby reduce the amount of additional content needed in the systems description.

2-4.e. Evaluation. Evaluation of proposed integrated management systems is normally undertaken as part of the proposal evaluation process. This evaluation is basically an assessment to determine the probability of the system meeting the C/SCSC. If an offeror has

proposed using a previously accepted system, the evaluation may simply consist of a confirmation that (a) the previous acceptance was of an appropriate type (Development/Production), (b) that a current Advance Agreement exists, or (c) if the system is currently in use, surveillance has not identified significant, uncorrected problems.

2-4.f. On-site Examination. An on-site examination of a potential contractor's proposed system is normally not required during proposal evaluation. When any aspect of the system is not clearly understood, however, clarification may be requested to be provided by the offeror. This may take the form of written communications or an on-site visit. Any such action shall be coordinated with other relevant component authorities including the Source Selection Board and Procuring Activity. Care shall be exercised during the entire review process to ensure that the offeror and the government have the same understanding of the system described in the proposal.

2-4.g. Coordination. If the potential contractor's proposed system is in use under an existing contract with the Government, coordination with the relevant procuring activity should be maintained during the evaluation review process. If it is necessary to review plans and reports of the other contract, concurrence of that procuring activity shall be obtained.

2-4.h. Proprietary Information. Care must be exercised to avoid improper disclosure of information obtained from contractors, especially in competitive situations, when an offsite evaluation is being made in which the degree of compliance with performance measurement criteria is a factor in contract award.

2-4.I. Evaluation Report. Following the evaluation of the proposed integrated management system, a report shall be prepared which addresses the extent to which each system adequately describes compliance with the Criteria. Any deficiencies shall be explained as to their nature, extent and perceived impacts. This forms part of the proposal evaluation report on which source selection is based.

2-5. Preparation of the Contract. The contract provisions shall require that the contractor's systems comply with the criteria throughout performance of the contract. Applicable government clauses are in Appendix A. The SOW tasks and the CDRLs from the solicitation also become part of the contract. The clauses cover the requirements of the criteria and other conditions as follows:

a. The contractor shall use and demonstrate the integrated management system which meets the C/SCSC;

b. The contractor shall obtain approval of changes affecting the accepted management system description;

c. The government shall have access to pertinent records and data associated with the integrated management system; and,

d. The C/SCSC shall be applied to selected subcontractors as required by the contract.

Chapter 3

Criteria Discussion

3-1. General Information. The purpose of this chapter is to discuss each criterion and its relationship to the integrated management system. The criteria, as listed in Appendix G, define a basic structure within which good management processes fit. The five sections of the criteria, Organization, Planning and Budgeting, Accounting, Analysis, and Revisions continue to address basic management concepts. Management processes that include organizing, scheduling, work/budget authorization, etc., however, tend to cut across the five sections.

In this chapter, the 35 criteria statements have been regrouped to facilitate a process approach to evaluation of system compliance. There are nine groupings listed below: Organizing, Scheduling, Work/Budget Authorization, Accounting, Indirect Management, Managerial Analysis, Change Incorporation, Material Management and Subcontract Management. For example, all of the criteria statements that relate to the organizational aspects of an integrated management system are listed together. Note that some criteria relating to multiple processes, such as criterion 2.d, the "element of cost" criterion, are repeated for each process where appropriate. The subparagraph headings illustrate how that criterion specifically relates to the process under discussion. The applicable criterion number (from Appendix G) is cited in parentheses following each subparagrpah heading. In addition, a matrix which lays out these relationships is included in Appendix E, the IMS Evaluation Guide.

Appendix E, the Evaluation Guide, is also cross-referenced to this chapter. This will aid the review team members in understanding the criteria concepts and using them to evaluate the contractor's processes. Appendix D contains generic descriptions of the major processes evaluated within most contractor facilities.

3-2. Organizing. The organizing group is concerned principally with: (1) definition of work required to be performed by the contractor; (2) the assignment of tasks to organizations responsible for performing the work, including major subcontractor identification; (3) ensuring that each part of the integrated management system is properly established; (4) facilitating the collection and development of information for management purposes; and (5) identifying organizational resources that facilitate the preparation of accurate and timely estimates of contract cost and schedule completion.

3-2.a. Organizing the work (1.a). The contractor's extension of the WBS should reflect all contract work to be done and the way it is to be managed and performed. A critical aspect is to establish organizational responsibility for segments of the work and to define in-house effort versus subcontracted effort. The contractor must be provided flexibility and must not be driven to subdividing work down to unreasonably low levels. In establishing the lower levels of a CWBS, it is essential to recognize and accommodate the differences between the organizing, performance, and management of work in development versus production efforts. The level of detail in a subcontract CWBS is independent of the level of detail in the prime contract CWBS and is also independent of the level of the prime contract CWBS element into which the subcontract feeds. This means that if subcontracted work is large enough or complex enough to warrant C/SCSC flow down, then these subcontract work tasks should be broken down by the subcontractor as if it were a prime contract.

3-2.b. Assigning organizational responsibility (1.b). The contractor's Organizational Breakdown Structure (OBS) reflects the way the contractor has organized the people who will accomplish the work. To assign work responsibility to appropriate organizational elements, the CWBS and organizational structure must be interrelated with each other; that is, organizational

responsibility must be established for identified units of work. The assignment of lower level CWBS elements to responsible lower level managers provides a key control point for management purposes and cost collection. This is called the cost account (C/A). Integration of the CWBS and organizational structure at the cost account level may be visualized as a matrix with the organizations listed on one axis and the applicable CWBS elements listed on the other. This is called the Responsibility Assignment Matrix (RAM) (Appendix F, Format 8).

When effort is to be subcontracted out, the applicable subcontractor is identified and related to the proper CWBS element(s) and organizational entity charged with the responsibility for acquiring the subcontracted item. (See paragraph 3-10a) for specific guidance concerning the subcontractor management process.)

3-2.c. Ensure management subsystems integration with the CWBS and the Organization (1.c). The cost account is the main action point for planning and control of contractual effort. Virtually all aspects of the system come together at this point including budgets, schedules, work assignments, cost collection, progress assessment, problem identification, and corrective actions. In addition, most management actions taken at higher levels occur on an exception basis as a result of significant problems identified at this level. For these reasons the levels selected for establishment of organizational responsibility for cost accounts should be carefully considered at the outset of a new contract. This will ensure that the work will be properly defined into manageable units and that responsibilities are clearly and reasonably established. The quality and the amount of visibility available during the performance of the contract will largely depend upon the level and makeup of the cost accounts.

The cost account levels should be primarily determined by the scope of the management tasks. The proper levels should not be an arbitrary determination or the result of one "across-the-board" level. As an aid in determining a proper level, the size (dollar value, length, etc.) of the resulting cost account should be used to help indicate proper subdivision of work. While cost accounts are usually located immediately above the work package level, they may be located at higher levels when in consonance with the contractor's method of management.

3-2.d. Organize for effective performance measurement. (1.e) The cost account in an integrated management system is the lowest level in the structure at which comparisons of actual costs to budgeted costs are required. This should not be construed to imply that actual costs cannot be collected at a level below the cost account. Some contractors collect costs and make comparisons at or below the work package level. The cost collection point must be at a level which will identify the cost elements and factors contributing to cost and/or schedule variances. The data elements Budgeted Cost for Work Scheduled (BCWS), Budgeted Cost for Work Performed (BCWP), Actual Cost of Work Performed (ACWP) and variances, determined at the cost account level or below, should be summarized through both the CWBS and the organizational structure for analysis and reporting.

3-2.e. Authorize responsible organizations to proceed with work (2.d). Before work can proceed, scope and budget must be authorized to the responsible organizations. The authority for the contractor to begin work is contained in the contract negotiated and signed by the contracting parties. The program organization, headed by the PM, is given an internal authorization from the company to proceed and based on this document, budgets and work scope are divided among the program organizations. Primary budget assignments are normally made to functional organizations rather than to pieces of hardware or tasks. In a work team environment, budgets may be assigned to product related organizations. In either case, budgets will be established at the C/A level by element of cost. The cost account level may be the first point at which organizational budgets are specifically associated with CWBS

elements. Regardless of the budgeting technique, all authorized work must be associated with a corresponding budget.

3-2.f. Assignment of performing organizations (2.e). Work packages are natural subdivisions of cost accounts and constitute the basic building blocks used by the contractor in planning, controlling, and measuring contract performance. A work package is simply a low-level task or job assignment. It describes the work to be accomplished by a specific performing organization and serves as a vehicle for monitoring and reporting progress of work. Effective control and completion of the work requires that each work package be assigned to only one performing organization. Part of the organizing process is the correct establishment of this relationship.

When effort at the cost account level cannot be adequately defined into work packages, the contractor may retain budget and scope in a planning package. This package must also be assigned to an organization (usually the organization responsible for the cost account) for maintenance and for detail planning into work packages at the earliest possible time.

3-2.g. Establish management responsibility for corrective actions (4.a). Cost accounts consist of an aggregation of work packages and planning packages which are the responsibility of a single organization. Managerial authority and responsibility for corrective action should exist at this point making the cost account a key management control point in the system. It is important that the performance measurement baseline be maintained at this level since comparisons of planned versus actual performance are of little value to management if the measurement base is subject to uncontrolled fluctuation and change.

3-2.h. Establish organizational responsibility for resource allocations (4.f). Organizations engaged in the performance of contract effort must annually perform a comprehensive estimate of costs for the effort remaining, or more frequently when program needs dictate. The contractor must periodically assess the sufficiency of remaining resources versus the amount of work remaining. Responsibility for resource assignment to support program objectives must be clearly identified.

3-2.I. Provide Government personnel access to management information (5.f). This criterion gives the government the right to examine and audit contractor's books, records, or other information regardless of form (e.g., machine readable media, such as disks and tapes) or type (e.g., data bases, application software, data base management software, and utilities) in a manner sufficient to assess the contractor's compliance with C/SCSC.

3-3. Scheduling. This group of criteria statements helps define the structure of the schedule hierarchy that must be established to ensure proper, effective planning and statusing of all effort on the contract.

3-3.a. Structuring schedules for program management (2.a). Successful performance management requires contractors to integrate the technical, schedule, and cost aspects of program/contract management. Schedules that result from this integration show the planned time required to accomplish the technical scope of the contract. When contractors experience problems in technical performance, either schedule delays, cost problems, or both may follow. An adequate scheduling system will facilitate the depiction of the contractor's plan to accomplish the technical scope (the baseline or plan), the actual technical progress against that plan (correlating to earned value), and estimates of the cost to complete the remaining technical scope (commonly referred to as the forecast or schedule estimate-to-complete (ETC)). The schedule baseline, progress, and ETC all should readily integrate with the financial depiction (budgets, earned value, and ETC (cost)) of the technical scope.

One aspect of schedule integration that provides unique problems for contractors is the integration of subcontractor schedule information into the schedule hierarchy. This integration

should be accomplished in a manner that provides the most accurate depiction of the impact of subcontractor performance on the program schedules.

The criteria require the scheduling system to be formal, complete and consistent. The scheduling system should contain a master schedule and related subordinate schedules (intermediate, detailed and/or cost account) which provide a logical sequence from the detail to the summary level. Intermediate schedules should be established if needed to provide a logical sequence from the detail level schedules to the master program schedule. The scheduling system must also provide for the identification of interdependencies between organizations and/or CWBS elements at the level appropriate for efficient program management.

The criteria do not require the use of any specific scheduling system or methodology. Various scheduling techniques are available which will satisfy these requirements. These techniques may be employed at the summary and detail level but must remain consistent with and be supportive of the master schedule. Clear and adequate relationships between the various techniques employed at various levels must be maintained, including vertical and horizontal traceability.

3-3.b. Incorporate meaningful progress indicators (2.b). The scheduling system should cover all specified work and incorporate program milestones that are meaningful in terms of the technical requirements of the contract. It should provide schedules such that actual progress can be related to the plan as well as reflect forecasts of expected future progress. Such schedules should identify key milestones and activities which recognize significant constraints and relationships. In establishing these key milestones, the contractor should take into account the expected achievement of technical parameters inherent in completing the effort required by the contract. These may be expressed in many different ways (miles per hour, depth in meters, frequencies, etc.) but in each case, they must reflect the achievement of a technical goal. Where an Integrated Master Plan (IMP) is required, individual "exit criteria" are specified that must be achieved before progress can be recognized. A key feature of the contractor's scheduling system is that it establishes and maintains the relationship between technical achievement and progress statusing.

Where contractual actions, internal replanning and/or formal reprogramming have taken place, the scheduling system should retain traceability from current indicators of work progress back to original plans and activities.

3-3.c. Evaluate deviations from the baseline plan (4.d). Scheduling should interface with other planning and control systems to the extent necessary for measurement and evaluation of contract status. The scheduling system should provide current status and forecasts of completion dates for authorized work. The contractor's summary and detailed schedules should enable a comparison of planned and actual status of program accomplishment based on milestones or other indicators used for control purposes.

3-4. Work/Budget Authorization. This grouping of criteria statements addresses the requirements for the organization established by the contractor to integrate budget and work planning requirements with the program schedules to ensure completion of contractual efforts.

3-4.a. Establishment and maintenance of the Performance Measurement Baseline (PMB) (2.c).

3-4.a(1). Baseline establishment. The assignment of budgets to scheduled segments of work produces a plan against which actual performance can be compared. This is called the performance measurement baseline (PMB). The establishment, maintenance, and use of the PMB are extremely important aspects of performance measurement. The PMB should be in place as early as possible after Authorization to Proceed (ATP). The relationship

of individual work tasks with the resources necessary to accomplish them, spread across time, is initially established at the cost account level. The summation of these budget values across time is the BCWS for the cost account.

3-4.a(1)(a). Summary Effort Control Packages (SECP). When it is clearly impractical to plan authorized work in cost accounts, budget and work should be identified to higher CWBS levels (called Summary Effort Control Packages) for subdivision into C/As at the earliest opportunity. The budget for this effort must be identified specifically to the work for which it is intended, be time-phased, its value periodically assessed when the EAC is updated, and controls established to ensure that it is not used in performance of other work. The maintenance of realistic budgets, directly tied to an established scope of work, is essential for each organization responsible for performing contract effort. Eventually, all the work will be planned by specific organizational elements to the appropriate level of detail. This is accomplished through the use of planning horizons based on the ability to establish reasonable cost account level assignments of work and budget. The key point pertaining to summary level planning is that it is no substitute for early and definitive planning. Without timely and adequate work definition and budget allocation, the validity of the entire PMB is questionable.

3-4.a(1)(b). Authorized, unpriced effort. For authorized unpriced work (relative to a proposed contract change or letter contract), it is acceptable for the contractor to plan and budget near-term effort in cost accounts, with the remaining effort and budget planned at a higher level or maintained in undistributed budget (UB). Normally, that period that is detail planned by the contractor covers the time from authorization to several months beyond definitization. The remaining effort will be planned and budgeted within cost accounts as soon as practical to ensure disciplined baseline planning. This will normally occur within the next full accounting period after definitization.

3-4.a(2). Baselines in excess of contract value. During the life of a contract, situations may arise whereby available contract budgets for the remaining work are insufficient to ensure valid performance measurement will occur. Under these circumstances, a requirement may exist for the total budget allocated to work to exceed the contract budget base (CBB), and formal reprogramming may be necessary. The resulting value is referred to as an Over-target Baseline (OTB). When appropriate, formal reprogramming by the contractor may entail replanning future work, replanning in-process work, or adjusting variances (cost or schedule or both). Such reprogramming allows the contractor to increase the amount of budget for the remaining work to a more realistic amount to adequately provide for reasonable budget objectives, work control, and performance measurement.

3-4.a(2)(a) Contractor actions. A thorough analysis of contract status with full coordination between the government PM and the contractor is necessary before the implementation and recognition of a total allocated budget (TAB) in excess of the CBB. The contractor must perform a detailed estimate of all costs necessary to complete the contract. Factors to consider in developing the estimate are (a) the amount of authorized work remaining, (b) the estimated cost of the resources required to accomplish the remaining work and (c) the budget (including management reserve, if any) available for reallocation to the remaining work. If the difference between the estimated cost to complete and the remaining budget is significant, the contractor will notify the procuring activity of the need to increase the remaining budgets and measure subsequent performance against a total contract goal higher than the contract budget base.

3-4.a(2)(b). Government Actions. Before entertaining a request for a baseline over the contract budget base, the government PM should consider the following:

(1) The primary consideration should be an analysis of the work remaining and the budget remaining. The fact that a contract is overrun to date and is projecting an overrun at completion is not the most important factor in the decision. Changing a baseline merely to compensate for variances already experienced is inappropriate. The reprogramming action should improve the quality of the contract performance for both the contractor and the government. While it is normal that cumulative schedule variances are set to zero during the reprogramming action, it may not be appropriate to do the same for the cost variance. The contractor and the program office should evaluate the benefit to program management of retaining cost variances versus resetting to zero. This evaluation should support the contractor's request for reprogramming authority.

(2) The contract should have at least six months of substantial work remaining after reprogramming.

(3) Reprogramming should not be done more frequently than annually and should be limited to those situations required to improve the quality of future cost and schedule performance measurement. Ideally, this extraordinary procedure should be necessary only once or twice during the life of a multiple year duration contract.

3-4.a(2)(c). Approving the baseline. When the government PM is satisfied that the new baseline represents a reasonable plan for completing the contract, the new baseline should be formally recognized (with appropriate procuring activity coordination) as a basis for future performance measurement. Timeliness is essential in making this determination. A decision should occur not later than 60 days following request for approval by the contractor. The government PM should take immediate action to evaluate:

(1) The impact on contract status reporting, such as the effect on cost and schedule variances.

(2) The method to be employed by the contractor in implementing the change; for example, adjustment of variances applicable to completed work, and/or adjustments to work-in-process.

(3) The estimated amount of time required to accomplish the reprogramming and the guidelines for performance measurement during that time.

(4) The effect on other contractual requirements; for example, the status of contractually specified program milestones, the contract share ratio, and the liquidation rates for progress payments.

3-4.a(2)(d). Documenting the new baseline. In formal reprogramming, the changes to baseline budgets must be fully documented and traceable. Internal records and reports should be revised expeditiously and provide appropriate visibility to account for the manner in which contract budgets were changed. If variances are adjusted, their cumulative values before adjustment will be retained to ensure traceability. Establishment of management reserve for the reprogrammed effort is acceptable in most circumstances. If deemed necessary, guidance may be obtained from the appropriate focal points identified in Chapter 4.

3-4.b. Authorizing work and budgets to the responsible organizations (2.d). As part of the baselining process, the work authorization system should define and identify the work to be done and the organizational elements responsible. Formal authorizations are usually issued within thirty days after Authorization to Proceed (ATP) to document the commencement of effort. Schedules and budgets should be established and approved for all work at appropriate levels within the framework of the CWBS. Task authorizations, work orders, or other appropriate means may be used for this purpose.

All cost accounts must contain a budget, a schedule, and a scope of work and should realistically represent the manner in which work is assigned and budgeted to the organizational units. The cost account budget should include all direct costs for the total scope of work with

separate identification of cost elements (labor, material, other direct costs). Establishing and maintaining control at the cost account level permits flexibility in the management of resources at the lower detail levels through work package replanning.

3-4.b(1). Cost Account Length. Since cost account budgets and schedules also establish the constraints required for baseline control, cost accounts should not be too long, or additional controls are needed to ensure objective assessment. When establishing cost accounts, factors to consider should include: the natural flow of work at this management control point; significant contract events that will be supported by completion of the effort within the C/A; the need to ensure objective measurement of progress by establishing shorter assessment periods; and, the rate structures to be applied to the C/A resources. Cost accounts which exceed a year in length must be disciplined by budget allocation constraints and/or procedures that prohibit the premature use of budget planned and required for far-term effort within these accounts. When cost accounts average about a year or less in length, replanning within cost accounts can be accommodated without the need for rigid constraints. It is not intended to limit cost accounts to one year in length. The intent is to ensure that budgeting procedures prohibit budget planned for far-term work from being moved into the near term without moving the associated scope of work.

3-4.b(2). Cost Account Budgets. Each cost account contains a defined scope of work and the schedule within which to accomplish that work. Resources necessary to complete the assigned effort are established and budgets reflecting these resources are assigned.

(a) Budgets may be stated either in dollars, hours, or other measurable units, although budgets for cost accounts and higher levels are normally expressed in dollars.

(b) Average (level) labor, overhead, and other rates for the life of the contract or cost account, in excess of one year in length, normally cause too much distortion in cost performance and are not acceptable. Monthly, quarterly, semiannual, or annual rates are acceptable, and they should result in a valid time-phased budget value for the task(s) to be accomplished. It is desirable to use the most recent negotiated forward pricing rates, but when this is not appropriate, it is acceptable to use other rates that will provide a valid PMB. At all times, BCWP must be based on the same rates as used for BCWS. Internal replanning of remaining portions of the PMB when there are significant changes in the anticipated labor, overhead, and other rates is desirable, but not mandatory.

(c) In general, the budget process should provide for the following:

(1) Direct budgets allocated to organizations performing the planned work identified to elements of the CWBS;

(2) Indirect budgets allocated to specific organizations having responsibility for controlling indirect costs; and

(3) Identification of any management reserves and undistributed budget.

3-4.c. Define the cost account effort into work packages and planning packages (2.e). Effort contained within a C/A is distributed into either work packages or planning packages. "Work package' is the generic term used to identify discrete tasks which have definable results.

3-4.c(1). Work Package Documents. Work packages are single tasks assigned to a performing organization for completion. Each work package is readily identifiable from all other work packages within the C/A. The work package descriptions must permit cost account managers and work package supervisors to understand and clearly distinguish one work package effort from another. It is not necessary that work package documentation contain complete, stand-alone descriptions. Supplemental documentation may augment the work package descriptions. In the review of work package documentation, it may be necessary to

obtain explanations from personnel routinely involved in the work, rather than requiring the work package descriptions to be completely self-explanatory. To be effective for planning and controlling work, work packages should have the characteristics defined in Appendix J.

3-4.c(2). Work Package Duration. A key feature from the standpoint of evaluating accomplishment is the desirability of having work packages that incorporate frequent, objective indicators of progress. Work packages should be natural subdivisions of effort that reflect the way in which the work will be done. Each work package should end with a definable end-product or event. When work packages are relatively short, little or no assessment of work-in-process is required, and the evaluation of contract status is possible mainly on the basis of work package completion. As work package length increases, work-in-process measurement becomes more subjective, unless they are subdivided by objective indicators, such as, discrete milestones with preassigned budget values or completion percentages.

It is recognized that work packages will vary significantly between functions. For example, manufacturing work packages tend to be quite short and discrete as natural products of the fabrication and assembly operations. Engineering work package planning may be somewhat more difficult since the work is more dynamic in nature, making it more difficult to define effort in discrete terms. For these reasons, the criteria do not impose specific limitations on work package duration. Factors such as contract and program milestones, natural breakpoints in the flow of work, the availability of automated support systems to evaluate progress at or below the work package level, and the availability of objective indicators for measuring completed work-in-process are considered in determining the length of work packages.

3-4.c(3). Planning Packages. Usually, all of the work for a given contract cannot be planned in detail at the outset, but it can and should be initially divided into larger segments so that the entire contract requirement may be viewed as a sum of identified parts. This effort and its related resources are placed into planning packages within the C/A. Planning packages are aggregates of future tasks and budgets, placed beyond the natural planning horizon, which will be divided into discrete work packages at the earliest practicable point in time. When planning packages are established within a cost account, the contractor's system should provide for sufficient control of these budgets to avoid a situation at the end of the cost account where there is inadequate budget remaining for the work left to be performed. This means that time-phased budgets assigned to planning packages (P/Ps) must be supported by a specified scope of work and that this relationship must be maintained when detailed planning of the efforts occurs. On some development contracts, due to work scope and funding uncertainties, it may be impractical to identify future work in any detail beyond a significant contract phase or event (milestone), e.g., Preliminary Design Review (PDR) or Critical Design Review (CDR).

3-4.d. Verification of Cost Account Budgets (2.f). All cost accounts must contain a budget, schedule, and scope of work and should realistically represent the manner in which work is assigned and budgeted to the organizational units. In all cases, the value of the budget assigned to individual work packages and planning packages within the cost account must sum to the total value authorized for the cost account through the work/budget authorization process.

3-4.e. Tie work package budgets to information in supporting systems (2.g). When the contractor has determined that progress will be measured through the use of a standards-based performance measurement system, a direct relationship between the standards planned and the BCWS for the associated effort must be established. This most commonly occurs in a manufacturing environment. When appropriate, the contractor must utilize anticipated learning when factoring standards to develop time-phased BCWS. This normally occurs during the

production of multiple units under a single contract. Any method used to apply learning is acceptable as long as the BCWS is established to represent, as closely as possible, the expected ACWP that will be charged to the cost account/work package.

(1) It must be stressed that measuring the performance of manufacturing work through the use of objective indicators such as earned standards does not eliminate the requirement for detailed planning and control of manufacturing work. The breakdown of manufacturing work into work/shop orders which specify the processes or assembly steps, materials, and organizations needed to fabricate or assemble a unit or lot, as well as assigned schedules and budgets or values, is an accepted general practice in the management of manufacturing effort. This is essential if schedules and efficient performance are to be maintained.

(2) Examples of the use of objective indicators for measuring accomplishment of repetitive manufacturing operations may include:

(a). The use of milestones with assigned or readily determinable budget values.

(b). Direct measurement of accomplishment in terms of units of work; that is, some form of an earned or equivalent unit measurement system.

(c). An input-output measurement system which compares planned levels and actual performance.

These examples indicate the principal types of manufacturing measurement systems and reflect the fact that a contractor who already has an effective means of measuring manufacturing performance should be able to satisfy the criteria, providing that this means of measurement is integrated with the contractor's baseline plan for the performance of the manufacturing work.

(3) The contractor must establish a baseline plan for manufacturing work which includes time-phased budgets that are consistent with the schedules for the performance of the work. The performance measurement indicators (milestones, earned units, scheduled output etc.) must be clearly identified and directly related to cost accounts. They must be scheduled in a sequence which supports the achievement of higher level schedules including those specified for cost accounts. These indicators (milestones, units, etc.) must clearly represent the accomplishment of an identifiable quantity of work within the cost account and be assigned a value reflecting the planned cost of that work. These values must summarize to or reconcile with the total budget for the cost account. The use of a measurement base which is only generally indicative of some progress (for example, equal value milestones not related to specific work) is not acceptable.

3-4.f. Planning and control of apportioned and level-of-effort activities (2.h). LOE activity is treated differently from work-packaged effort. While work packages are discrete and accomplishment can be measured based on the completed pieces of work, LOE is "measured"' through the passage of time. LOE activity should be separately identified from work packaged effort to avoid distorting that which is measurable.

(1) The amount of LOE activity will vary among performing organizations, but it should be held to the lowest practical minimum. The criteria do not establish guidelines as to how much LOE is acceptable, but they do require that only work which cannot be work packaged or apportioned must be designated LOE.

(2) As a minimum, LOE budgets must be separately substantiated and planned as direct labor, material/subcontract, and other costs. LOE activity should be budgeted on a time-phased basis for control and reporting purposes.

(3) The intermingling of LOE and discrete work within the same cost account must be minimized to preclude distortion of performance measurement. Intermingling of LOE and discrete work within the same cost account is not allowed when the cost account is large and the amount of both LOE and discrete work is substantial. When LOE and discrete effort are

mixed within the same cost account, it is preferable, but not mandatory, that ACWP be collected separately for the LOE and discrete portions and the separate ACWP be used for performance analysis. When ACWP is available only at the cost account level, then the amount of LOE intermingled with discrete work must be small. Judgment must be used when addressing the intermingling of LOE and discrete work within small cost accounts. The splitting of a small cost account into two even smaller cost accounts is not required solely to create a total segregation of discrete effort from LOE.

3-4.g. Establish and track management reserve and undistributed budget (2.j).

3-4.g(1). Management Reserve. In most major acquisition contracts, particularly in the development phase, there is considerable uncertainty regarding the timing, CWBS elements involved, or magnitude of future difficulties. The criteria permit the use of a Management Reserve (MR) provided that adequate identification and control are maintained. MR budget and its use must always be accounted for at the total contract level. Normally, it is retained and controlled at this level, although in some cases it might be distributed to and controlled at lower management levels. In any event, MR is maintained separately from undistributed budget. There is no such thing as "negative management reserve."

Management reserve is not a contingency which can be eliminated from contract prices during subsequent negotiations or used to absorb the cost of contract changes. The contractor should not be required to use existing management reserve to provide budgets for authorized, but undefinitized, work or other modifications to authorized contractual efforts. The contractor may, if the documented management system permits, use management reserve to provide temporary budgets for authorized, unpriced work. It must remain clear to both parties that the management reserve budget was derived from costs previously negotiated, and that its application to unpriced changes is a temporary "borrow/payback" situation. Definitization of contract changes may result in establishing a new level of management reserve reflecting the revised effort. This new level may exceed prior reserves.

3-4.g(2). Undistributed Budget (UB). Budgets applicable to contract effort, which cannot be specifically identified to CWBS elements at or below the level specified for reporting to the government, are referred to as Undistributed Budgets (UB).

(a) The establishment of UB may be necessary when contract changes are authorized. For example, reporting deadlines may preclude the planning of newly authorized work prior to report preparation. Since budgets for all authorized contract work must be accounted for, some provision for the budget applicable to contract changes must be made. In such cases, undistributed budgets identified to the specific contract changes may be established. Except as provided in (b) below, the budget should be distributed to appropriate CWBS elements and cost accounts by the end of the next reporting period.

(b) For authorized work which has not been negotiated, the contractor may maintain budgets in the UB account until negotiations have been concluded, allocating budget only to that work which will start in the interim. After negotiations, the remaining budget should be allocated appropriately. Both before and after negotiations, budgets may be allocated as additions to the scope of existing cost accounts or when appropriately allocated to separate cost accounts.

(c) In special situations, budget may remain in UB for an indefinite length of time. For example, where a Special Studies Contract Line Item Number (CLIN) has been negotiated and a pool of hours established, the contractor may hold this value in UB and only distribute budget as studies are authorized. In this way, visibility into remaining budget is available to the customer in the CPR, and the contractor is not forced to arbitrarily time-phase budget without an adequately defined scope of work. These situations are very unique and limited and should be agreed to, in advance, by the contracting parties.

3-4.h. Reconcile budget values to contract cost (2.k). After contract negotiations are completed, the total allocated budget used to report contract performance to the DoD must always represent an amount which is formally recognized by both parties. This is to force recognition of contractual requirements and to preclude undisciplined changes to the performance measurement baseline. The initial establishment of the performance measurement baseline should be tied to the negotiated contract cost . As new work is authorized on the contract, the negotiated contract cost and the performance measurement baseline are increased accordingly. Normally, the total allocated budget (the performance measurement baseline plus management reserve) should not exceed the negotiated contract cost plus the estimated cost of authorized but unpriced work (the contract budget base).

3-4.i. Budget apportioned effort as it will be allocated (3.e). Apportioned effort is activity dependent on and related in direct proportion to the performance of other discrete effort. For example, quality assurance and other inspection functions are frequently treated as apportioned effort based on the amount of manufacturing effort. Apportioned effort may be included and budgeted as a part of the work package or cost account to which it relates. Apportioned effort may also be established as a separate work package with its own budget which is based on a percentage of the related work package or cost account budget. Factors established for the application of apportioned effort must be documented and applied in a formal, consistent manner. Apportioned effort should be limited to that which is genuinely related to discrete effort.

3-4.j. Accumulate BCWP the same way BCWS was established (4.a). In order to perform effective analysis of variances, it is vital that BCWP is accurately assessed using the same basis upon which BCWS was planned and actual costs accumulated. The major difficulty in the determining of BCWP is the evaluation of in-process work (work packages which have been started but have not been completed at the time of cutoff for the report). The use of short-span work packages or establishment of discrete value milestones within work packages will significantly reduce subjective work-in-process evaluation. Specific procedures used will vary depending on work package length. For example, some contractors prefer to take no BCWP credit for a short-term work package until it is completed, where others take credit for 50 percent of the work package budget when it starts and take the remaining 50 percent at completion. Some contractors use formulae which approximate the time-phasing of the effort, others use earned standards, while still others prefer to make physical assessments of work completed to determine the applicable budget earned. For longer work packages, many contractors use discrete milestones with established budget or progress values to measure work performance. The criteria do not specify any particular method. The technique used will largely depend on work package content, size, and duration. The use of arbitrary formulae, as described above, should be limited to very short work packages. At all times, BCWP must be computed using the same basis as was used to establish BCWS. In addition, labor, overhead, and other rates used to calculate BCWP must be the same as for the associated BCWS.

3-5. Accounting. The accounting system structure is defined by the contractor's Cost Accounting Standards Board (CASB) Disclosure Statement. The intent of this grouping of criteria statements is to ensure there is a timely and accurate transfer of actual cost information from the accounting system into the integrated management system.

3-5.a. Establish an accounting system interface with the integrated management system (3.a). In order to maximize the ability to measure contractor performance on government programs, it is reasonable and prudent for contractors' accounting systems to be capable of accounting for all resource expenditures on an "applied" basis (i.e., on an "as-used"

or "as-consumed" basis). This requirement creates few difficulties in the categories of direct labor (where time cards or other time measurement devices are used) or other direct charges (where services are rendered on some type of dollarized per-unit basis). In the area of material accountability, there is considerable variation among contractors and their respective systems of accounting for material usage. Recognizing the absence of uniformity in material methodologies, the criteria provide relaxed interpretations as to what constitutes an "applied" basis of material accounting, as well as alternatives for acceptance on an "other-than-applied" basis. Guidelines for an adequate material accounting system are discussed in the paragraph 3-8d.

The key to an acceptable accounting system that interfaces with the integrated management system is the ability to accumulate actual costs so that they may be compared to the budget values that were established for the corresponding effort. This is normally accomplished by establishing a charge number system through which direct costs are accumulated and summarized.

3-5.b. Ensure accurate summarization through the WBS (3.b). Allowable costs collected within the cost account by element of expense must summarize from the cost account level through the CWBS to the top reporting level without being simultaneously allocated to two or more higher-level elements. A carefully developed CWBS, reviewed for adequacy in accordance with applicable guidance, such as MIL-STD 881 (latest revision), and a corresponding cost collection structure, should prevent any single element's data from being summarized to multiple higher-level elements. This does not preclude the allocation of costs from a cost account containing common items or services to the appropriate using cost accounts.

3-5.c. Ensure accurate summarization through the OBS (3.c). The same requirement for accurate cost summarization relative to the CWBS applies to the contractor's organization as well. The integrity of the data summarization begins at the cost account level through the OBS to the highest-level organizational element without costs being simultaneously applied to two or more higher-level elements. Again, a carefully developed OBS and cost collection structure will assure compliance with the intent of this criterion.

3-5.d. Establish a capability to track costs for apportioned effort (3.e). The accounting requirement here is the same as addressed under 3-5a, e.g., the system should ensure that actual costs for effort identified as apportioned should be collected properly so that valid comparisons to the budgets for the apportioned effort may be made.

3-5.e. Unit/Lot costs must be identifiable (3.f). The contractor may be required to account for the production of contracted items in a manner that facilitates development of unit cost, equivalent unit costs, or lot costs. This is normally a requirement of contracts where multiple units are being produced in a production or production-like environment.

This criterion recognizes alternatives to single unit cost for specific circumstances unique to the production environment. When production effort occurs on an accelerated assembly line basis, it may not be practical to determine individual unit costs. In such situations, it is sufficient to accumulate "lot" costs (where a lot is an aggregate of a specified and consistent number of units). In those situations where production line effort yields substantially comparable units for more than a single customer, it is also difficult to establish the cost of specific units. It is sufficient, under these circumstances, to establish "equivalent unit costs" based on the assumption that, all things being alike, each unit's cost is approximately equal to every other unit's cost on a "mature" production run.

3-5.f. Use accounting system actuals for variance analysis (4.a). In order to ensure the integrity of performance data, it is essential that all actual costs used for variance analysis come directly from, or be reconcilable with, the accounting system. The criterion requires a

system of collecting and reporting actual and/or applied cost data (ACWP) that incorporates the cost information obtained from the contractor's accounting system. In some cases, the time lag involved in recording costs in the accounting system creates artificial variances. In these cases, it may be necessary for the contractor to use “estimated actuals” to avoid artificial variances. It is essential that specific procedures be in place to ensure that the estimated actuals are reconciled to the accounting system on a regular, periodic basis. This is not a problem in the collecting and reporting of labor costs but may arise with some elements of Other Direct Costs (ODC); e.g., travel voucher processing time, purchased services payments, etc.

3-5.g. Control retroactive changes to actual costs (5.c). Retroactive adjustments to ACWP should only be made for routine accounting adjustments or for correction of errors. Any direct or indirect cost adjustments made by the contractor must be made in a timely manner in accordance with Generally Accepted Accounting Principles (GAAP) and performed in a manner consistent with the contractor's written system description and disclosure statement, if applicable.

3-6. Indirect Management. This grouping of criteria pulls together those statements that apply to the contractor's process of establishing, implementing, controlling and evaluating indirect budgets and costs that are incurred and allocated to the individual contracts. Since indirect costs are normally handled by the contractor in organizations that are not contract specific, the criteria require that the contractor have some method for assigning the appropriate values for indirect budgets and actuals to all affected contracts.

3-6.a. Assign managerial responsibility for Indirect Cost (1.d). The contractor should have an indirect budgeting process which includes the formal assignment of duties and limits of responsibility, a description of the indirect system, and policies and procedures applicable to the establishment and control of indirect costs. Assignment and control of the indirect resources must be clearly defined and should be commensurate with the authority to approve or to avoid the expenditure of resources.

3-6.b. Include indirect budgets in the PMB (2.c). The PMB should include indirect budgets, if they are not already included in the time-phased cost account budgets, SECP budgets, UB, then provisions to include them at the appropriate summary WBS and OBS level must be made. Irrespective of the level at which indirect budgets are allocated/assigned to the contract, average indirect rates for the life of the contract or cost account, in excess of one year in length, normally cause too much distortion in cost performance and are not acceptable. Monthly, quarterly, semi-annual, or annual indirect rates are acceptable, and should result in a valid time-phased baseline for the task(s) to be accomplished. At all times, BCWP must be based on the same indirect rates as used for BCWS.

3-6.c. Correlate indirect budgets with contract activities (2.l). This criterion requires the contractor to (a) have and use indirect budgeting procedures and (b) to ensure that employees follow these procedures. This is essential to ensure that indirect costs are managed effectively and the correct portions of each indirect pool are allocated to the PMB against which contractor performance/progress may be measured. Indirect pools and their contents are identified in the contractor’s disclosure statement.

The contractor must establish realistic time-phased budgets and forecasts for indirect costs by organization. Rate tables must be used that cover the life of the contract so that a valid PMB can be established. The contractor should review Indirect cost budgets at least annually and also when major changes are identified in factors affecting indirect costs. The contractor should inform the government of any material changes to budgetary data as soon as they are known to facilitate program management determination of impact or potential replanning effort.

The contractor should assign responsibilities for all major aspects of the indirect cost control system. A description of the Indirect Cost Control process should document the flow from development of the budget through tracking, analysis and revision. Additionally, procedures must be established to ensure that the indirect cost information contained in the accounting system is accurately reflected in the integrated management system for accumulation and analysis.

3-6.d. Collect actual indirect costs for allocation to individual contracts (3.d). Indirect costs represent expenses which benefit more than a single contract. The contractor is required to record all allocable indirect costs and to explain procedurally how these indirect costs are to be recorded. The procedures should be consistent with those described in the contractor's disclosure statement. In order to comply with this criterion, it is not sufficient that the contractor state simply that indirect costs are recorded. A description of how the indirect cost accumulation system works is necessary to provide the government with adequate and reasonable assurance that indirect costs are allocated to each contract in reasonable proportion to the beneficial or causal relationship of the inte indirect costs. The contractor's procedures and/or IMS description should specify the level at which indirect cost information will be allocated to individual contracts.

3-6.e. Analyze indirect variances (4.b). The contractor should have controls to ensure that actual indirect costs are compared to indirect budgets on a monthly basis. Specific control procedures should be implemented to ensure that variances are identified, reported, and addressed by the appropriate level of management. Such controls increase the likelihood that potentially significant variances are communicated and considered in the development of the EAC. Action should be taken to reduce indirect costs where feasible. Once analysis of indirect variances has occurred, this information should be shared with all affected programs in order to ensure that usable management information is being provided to both the contractor and the government PMs.

3-6.f. Ensure most accurate rates are used to project indirect costs (4.f). The contractor must maintain a forecasting system which projects indirect costs in a rational and consistent manner. The most current information should be used in preparing the contractor's indirect rates, including historic experience, contemplated management improvements, projected economic escalation, and anticipated business volume. The use of these rates to generate indirect cost estimates will ensure a valid projection on contract costs.

The contractor must compare the indirect budgets to estimates of final indirect costs. Any significant differences must be identified and provided to contractor managers to use. As part of this process the Variance At Completion (VAC) must be analyzed, and the causes of the variance along with any corrective actions must be documented.

3-7. Managerial Analysis. This section discusses BCWS, BCWP, ACWP, Budget at Completion (BAC), and EAC, and analyses of variances resulting from comparisons of these five basic elements. Managerial aAnalysis is the evaluation and feedback loop of the contractor's integrated management system where management actions are determined, based on lower level analysis of problems; where corrective actions are implemented; and where their effect on cost and schedule performance are projected. Material variance analysis is covered in section 3-9e.

3-7.a. Analyze significant variances at the cost account level (4.a).

3-7.a(1). Schedule Variance. Comparing BCWP with BCWS relates the value of work completed to the value of work scheduled during a given period of time. While this provides a valuable indication of schedule status, in terms of dollars worth of work accomplished, it may not clearly indicate whether or not scheduled milestones are being met

since some work may have been performed out of sequence or ahead of schedule. Comparisons of BCWS and BCWP will not indicate whether an activity that has been completed is a critical event or whether delays in that activity's completion will affect the completion date of the contract. A formal time-phased scheduling system, therefore, must provide the means of determining the status of specific activities, milestones, and critical events (See paragraph 3-3).

3-7.a(2). Cost Variance. Comparisons of BCWP and ACWP will clearly show whether completed work has cost more or less than the value that was planned for that work. Analysis of these differences should reveal the factors contributing to the variances, such as poor initial estimate for the task, technical difficulties requiring application of additional resources, the cost of labor or materials different than planned, differences between planned and actual rates, personnel efficiency different than planned, or a combination of these or other reasons.

3-7.a(3). Variance at Completion. Comparisons of BAC with EAC are required internally at the cost account level and provide estimated variances expected at the completion of the contract. Cost account managers need to be constantly alert to circumstances which will cause the EAC and, therefore, the variance at completion (VAC), to change. Managerial authority and responsibility for corrective action should exist at this point.

3-7.a(4). Required analysis. Comparisons of BCWP with BCWS and with ACWP and the analysis of their differences are required at the cost account level. Budgeting (BCWS), measuring performance (BCWP), and collecting costs (ACWP) by element of cost facilitates determining and reporting the reasons for significant variances in both the progress reviews and in the narrative portion of the external performance measurement report. Managers at all levels should identify as part of this process either additional or excess resources (labor, material, etc.) required to complete the assigned scope of work. As a result of this analysis, updates to the EAC can be generated that provide visibility into future cost containment or cost growth.

3-7.a(5).Significant Variances. It is important to establish reasonable selection criteria to ensure proper analysis of all significant problems and not cause an excessive burden on the contractor’s managers. The use of meeting notes, minutes, or other material generated as normal function of the contrctor’s management process to support this analysis is encouraged. Because of the differences inherent in the contractor’s management structure, the selection criteria may vary with respect to the organizational level. It is essential that these internal variance requirements be established so that all significant variances will be analyzed and external reporting requirements of the customer are supported.

3-7.a(6). Technical Achievement.

(a) The key to meaningful correlation of technical achievement with cost and schedule control is the proper organization and supervision of effort. If a CWBS matches the specification tree and also reflects the manner in which the contractor actually does the work, the problem of correlation is greatly simplified. It should be recognized, however, that technical performance evaluation often needs to “cut across” WBS elements to be effective. In correlating cost, schedule, and technical achievement, it is apparent that unfavorable cost or schedule conditions are usually caused by technical difficulties. Quantitative information as to technical status is desirable and should be supplemented by narrative reports.

(b) As work on a contract progresses, the contractor determines the adequacy and quality of the work performed by making inspections, tests, or other types of technical measurements. If the results are satisfactory and no corrective action is required, the work is then allowed to proceed further. If, on the other hand, deficiencies are found, the contractor considers various alternatives for corrective action; for example, redesign, scrap and remake,

rework, etc. When considering these alternatives, the impact on cost and schedule must be weighed in addition to the technical considerations. After one of the alternatives is selected , it may become necessary to plan the additional work in terms of new work packages or additions to existing unopened work packages and to change the schedules affected. In some cases the contractor may choose to provide additional budget to the responsible organization. Thus, there is a close relationship between technical achievement and its impact on cost and schedule.

3-7.b. Summarize performance data for mid-level management evaluation (4.c). BCWS, BCWP, ACWP, and associated variances should be summarized directly into both the WBS and the organizational structure from the appropriate level (cost account or below) to provide both contract status and organizational performance at all levels of management. This process should support an overall capability for managers to analyze available information to identify problem areas in sufficient time to take remedial action. Because favorable variances in some areas are offset by unfavorable variances in other areas, higher level managers will normally see only the most significant variances at their own level. The accumulation of many small variances which may add up to a large overall cost problem not attributable to any single major difficulty will also be evident. The same is true of the information to be reported to the government.

If required by the contract, the external performance measurement report provides data to the government at a summary level, normally the third level of the CW BS or higher. Organizational performance data will be reported at the total contract level reflecting the contractor's organizational structure, whether it be functional (engineering, manufacturing, tooling, material, subcontract, etc.), a project/matrix organization, or work teams. The reason for reporting only summary level information to the government is that as long as contract performance is proceeding according to plan, there should be no need to report additional detail. If actual performance begins to deviate from the plan, the contractor's system should provide the capability for tracing the variances to their source to isolate the causes of the deviation.

Where the contractor has chosen to implement the summary level variance process; i.e., documentation of variances analysis at a level above the cost account level, it should be accomplished in such a manner as to facilitate analysis of cost account(s) that are grouped (by function or product) or are impacted by common problem causes. This analysis and its concurrent documentation should state the cause of the problem, the impact within and outside the function or product involved, corrective actions being implemented or contemplated along with planned get-well dates, and the expected impact on cost, schedule and technical parameters. The implementation of summary level variance analysis does not relieve the contractor of the requirement to analyze significant variances at the cost account level.

3-7.c. Take effective management action as a result of analysis (4.e). It should be recognized that performance measurement is only one of the management tools available to contractors and government project managers. Many major problems are disclosed through methods other than monthly cost reports. For example, failure to meet closely monitored schedules, manpower loads, or technical achievement plans and requirements, should promptly alert contractor management that a problem exists. The contractor's internal cost performance reports and the reports forwarded to the government, however, should indicate the overall cost and schedule impacts of such problems on the contract. Because of this, the data produced by the integrated management system must be available to managers on a timely basis and must be of sufficient quality to ensure that effective management decisions are made as a result of its analysis. The effects of these management decisions should be tracked to ensure that the actions taken to resolve the problem are proper and effective.

3-7.d. Generate periodic estimates of final cost (4.f). The contractor will periodically develop a comprehensive estimates of costs at contract completion. In developing the EAC, the contractor should use all available information to arrive at the best possible estimate of costs to complete the remaining authorized contract effort (ETC) and add this to actual costs to date (ACWP). This is done by (a) evaluating the efficiency achieved by performing organizations for completed work and comparing it to remaining budgets; (b) establishing a schedule forecast that reflects the expected time-frame for completing the remaining work; (c) considering all remaining risk areas on the contract versus cost avoidance possibility; (d) ensuring that the direct and indirect rate structure used to value the projected resources considers factors such as inflation, economic escalation and projected process improvements; and, (e) applying this analysis to future efforts to ensure the most accurate estimate is achieved. Comparisons of this estimate to budgets for the associated effort must be made frequently enough for management to ensure that program performance and resource availability will not be adversely impacted.

3-7.d(1). Comprehensive EAC. While no specific time period for developing a comprehensive EAC is established by the criteria, it is expected that a comprehensive estimate will be prepared at least yearly, usually in support of the business plan update. More frequent EACs should be generated when performance indicates that the current estimate is invalid. The EAC process focuses on the cost account manager, but it should also provide for regular input from production control, industrial engineering, material management, finance, estimating and other organizations which may impact cost. As part of the EAC process, it is incumbent on the contractor PM to assess future events, both contract and plant-wide, which may impact cost, schedule or technical performance on the contract. An effort to quantify the impact of these events should be made and communicated to the government PM. Wherever possible, these items should be identified to individual WBS elements and/or organizational elements and included in the external reports. This EAC must be reconciled to both internal data and other reports submitted to the government.

3-7.d(2). Monthly updates. In addition, the EAC should be examined for accuracy as a monthly cost management function and should be updated, as warranted. The procedure should be systematically and consistently used from period to period, with adequate consideration given to performance to date. The EAC procedures should provide for the regular, consistent formulation or updating of an estimate of cost to completion, using the most current rates available, and time-phased. This is necessary to ensure that resource requirements are realistic and phased in accordance with projected performance.

3-7.d(3). Reporting. Both the comprehensive EACs and the monthly updates are essential as a basis for management decision-making by both the contractor and government managers. Contractor PMs are encouraged to provide the most accurate cost estimate possible through program level assessments of remaining cost and/or schedule risk areas, cost and schedule containment possibilities and planned cost reduction efforts. The impact of these assessments should be reflected in the EAC reported to the Government PM in the external report. This assessment may include a range of estimates to include best case, worst case and most likely outcome. The assumptions and conditions under which these values were calculated should be listed in the total program summary portion of the external performance measurement report. The most likely estimated cost at completion submitted to the government need not be exactly the sum of the internal estimates at the cost account and/or intermediate WBS levels as long as it is reconcilable with it as well as with the contractor's latest statement of funds requirements reported to the Government. EACs should be established without regard for contract ceilings.

3-8. Change Incorporation. Changes in major procurements are inevitable. This section of the criteria addresses the controlled process whereby contractors incorporate formal changes, conduct internal replanning, and adjust past, present and future information to accommodate changes. The keys are timeliness, control, and customer notification.

3-8.a. Government-directed changes (5.a). Government-directed changes to the contract can impact virtually all aspects of the internal planning and control system, such as organization structures, work authorizations, budgets, schedules, and estimated final costs. The incorporation of authorized changes should be made in a timely manner and strictly controlled. This will ensure that the PMB is accurately maintained.

(1) Where the change has been negotiated, budget revisions are based on the negotiated cost. Where work is authorized before negotiations, appropriate change order planning will be accomplished and budgets will be established based on the contractor's cost estimate for the change, usually a not-to-exceed (NTE) amount.

(2) The adjustment of budgets to reflect negotiations is normally accomplished by revising UB, MR, budgets established for work not yet started, or a combination of these. The use of UB or MR generally has the least impact since it does not change budgets already issued and agreed-to by the responsible organization.

(3) Budgets associated with near-term work should be well-planned, so that retroactive changes to budgets for completed work associated with the change should not be necessary.

(4) The formal negotiation of completed tasks may result in an agreed-upon value different from that used to establish BCWS for these tasks. In this situation, it may be appropriate to adjust BCWS and BCWP retroactively to reflect the negotiated values of the completed tasks.

3-8.b. Provide traceability to previous budgets (5.b). The original budget established for those elements of the CWBS identified as priced line items in the contract should constitute a traceable basis against which contract growth can be measured. The starting point or base on which these original budgets are built is the negotiated contract cost also called the CBB. The CBB increases or decreases only as a result of changes authorized by the contracting officer. For definitized changes, the CBB changes by the negotiated amount. For authorized work which has not been negotiated, the CBB changes by the amount of cost estimated by the contractor for that effort. Where a specified Not-to-Exceed (NTE) amount has been established by the contracting officer, the CBB will only increase by this amount unless both parties mutually agree to a different amount for performance measurement purposes. After negotiations, the CBB is adjusted to reflect the negotiation results. For a letter contract, the CBB is initially the contractor's estimated costs for authorized work. The contract budget base, therefore, is a dynamic amount, changing as the authorized work under the contract changes. When budgets assigned to cost accounts, SECPs, indirect (if not in cost account/SECPs), UB, MR are added together, their sum must reconcile with the Contract Budget Base (CBB). The CBB is the sum of the negotiated values for authorized work plus the estimated value for authorized, unpriced effort. Adequate records of all changes should be maintained to provide the basis for reconciliation back to the original budgets assigned during the baselining process. All documentation affected by the change must be updated in a timely manner. Many contractors use logs (electronic or manual) to track the effects of changes on the PMB, MR and/or UB.

3-8.c. Control internal changes to the PMB. (5.c)

3-8.c(1). Basis. Each contractor should maintain a PMB that best represents the actual plan to achieve the remaining contract objectives. During the course of a contract, future contract plans may significantly vary from the original baseline, and the contractor may

choose to realign scope, schedule, or budget. Some examples of when it may be appropriate to do internal replanning (i.e., within the CBB or approved TAB) include:

(a) Changes resulting from a Preliminary Design Review (PDR) or a Critical Design Review (CDR) that modify future requirements;

(b) A major shift in the resource profile to accomplish the remaining effort;

(c) Funding restrictions or modifications that affect future resource availability;

(d) Labor, overhead, or other rate changes that are significant enough to warrant replanning of future budgets.

Internal replanning is intended for in-scope changes to future budgets. "Future budgets" means budgets for any accounting period following the current accounting period. The objective of internal replanning is to reflect a revised program plan which is within the authority of the contractor's program management. Changes to near term effort (scheduled to start within 30 days of the current accounting period) should be minimized.

3-8.c(2). Cost Account Replanning. Replanning of work packages within cost accounts is sometimes necessary to compensate for internal conditions which affect the planning and scheduling of remaining work. Such replanning should be accomplished within the constraints of the previously established cost account schedule and budget. When more extensive replanning of future work is necessary and the total cost account budget must be changed, management reserves may be used to increase or decrease the cost account budgets if done in a formal, documented manner.

(a) If replanning requires that work and associated budget be transferred between cost accounts, this transfer must also be documented. Except for correction of errors and accounting adjustments, no retroactive changes will be made to budgets for completed work. Replanning actions designed to reduce costs, improve or reflect improved efficiency of operations, or otherwise enhance the completion of the contract, are encouraged.

(b) Replanning actions which significantly affect the time-phasing of the PMB should be clearly auditable by review of contractor records and should be shown in applicable reports to the procuring activity. Maintenance of a PMB is required to ensure that deviations from plan are visible and can be examined to determine their causes.

3-8.c(3). Manufacturing work package changes. A certain amount of rescheduling of open manufacturing work packages is appropriate and acceptable providing procedures are in existence which prevent the inadvertent invalidation of baseline schedules and budgets through these detail-level changes. The substance of such procedures should be to limit the range of rescheduling so as to maintain consistency with key production schedule dates. Key production schedule dates define the required completion dates for key elements of the manufacturing plan, are normally found on internal production schedules, and normally should not be more than three months apart.

3-8.c(4). Method. Due to the importance of maintaining a valid baseline for performance measurement purposes, replanning must be accomplished in a systematic and timely manner and must be carefully controlled. Replanning should not be used as an alternative to proper initial planning, nor should it be used to mask legitimate variances.

(a) Many replanning changes can be handled within the existing budget and schedule constraints of cost accounts. Other changes may require transfers of MR to or from cost accounts and may require budget rephasing consistent with replanned schedules as a result of the changes.

(b) Changes in BCWS which significantly impact the time-phased PMB or the reporting elements of the WBS must be reported in the external performance measurement report and an explanation of the change provided to the government procuring activity. This requirement is not intended to reduce contractor's resource management flexibility but is

intended to assist all users of the contractor's management system data to understand and interpret it correctly.

3-8.c(5). Replanning of work in process. It is recognized that internal replanning (or implementation of contractual changes) may involve changes to work-in-process. If replanning of open work packages or LOE is necessary, the following methods are acceptable:

(a) Close incomplete work packages by setting BCWS equal to the BCWP earned to date. Subtract BCWP from the work package BAC to determine the remaining budget which is then handled in accordance with normal replanning guidance.

(b) Replan future work and adjust the work package BAC to reflect the change in accordance with normal replanning guidance. The contractor will replan the remaining work of the in-process work package from no earlier than the next accounting period forward. The contractor must have controls to ensure that replanning is restricted to the future portion of open work packages, and to also ensure that changes are minimized, are consistent with the contractually-required schedule milestones, and are authorized and documented in accordance with the contractor's control procedures.

(c) LOE, whether planned in separate cost accounts or as part of predominantly discrete cost accounts, has additional flexibility and may also be adjusted to correlate to work plan changes within the current accounting period, without government approval, provided that no actual costs (ACWP) have been charged to the LOE.

3-8.c(6). Approval. No prior notification or government approval is required to replan discrete or LOE work if the replanning is (a) applicable to the next accounting period onward, (b) does not cause the TAB to exceed the CBB, and (c) does not cause or constitute a slippage of a contractually-required milestone; or (d) is below the work package level. Some internal replanning does require procuring activity approval prior to implementation. Prior to authorizing such changes to a PMB, the procuring activity, with support from the contract administration office (CAO), must promptly and thoroughly evaluate the impact of the change. Approval must specify the changes authorized and the timing for their implementation.

Prior government approval is required for the following conditions:

(a) Changes to open work packages that affect or change performance measurement data (BCWS, BCWP) in the current or prior accounting periods.

(b) Changes to LOE data in prior accounting periods or changes to current period LOE when the accounts have incurred charges (ACWP).

(c) Any internal replanning within the CBB (or approved TAB) which will result in a PMB schedule inconsistent with the contractually required schedule milestones. There must be clear, written understanding, formally authorized by the Procuring Contracting Officer (PCO), that the replanning approval is for performance measurement purposes and does not constitute a change in contractual requirements; e.g., "This approval authorizes the contractor to manage to the attached schedule for the sole purpose of performance measurement. This does not authorize the contractor to revise the contractual schedule requirements." All subsequent submittals of the external performance measurement report must clearly state that the reported PMB exceeds contractually-required schedule milestones or deliveries and must identify the schedule difference(s).

3-8.d. Correlate contract value with the Contract Budget Base (5.d). The CBB, established based on the agreed-to value of authorized work, must be strictly controlled in order to maintain a valid basis for contract performance. Changes to the CBB may only be made as a result of contractual changes. Contractor procedures should ensure that this is the case and that controls are in place to prevent inadvertent implementation of a baseline in excess of contract value.

3-8.e. Maintain change traceability (5.e). To maintain the validity of the PMB, contractor discipline is mandatory throughout the organization, particularly in regard to budgetary control. The contractor's written internal procedures should clearly delineate acceptable and unacceptable budget practices. These should include the following:

(1) Budgets are assigned to specific segments of work (CWBS elements, cost accounts, planning packages, and work packages).

(2) Work responsibility should not be transferred from one performing organization to another, or from one cost account to another without transferring the associated budget.

(3) A budget assigned to future specific tasks should not be used to perform another task, regardless of the CWBS level involved.

(4) When management reserves are used, records should clearly indicate when and where they are applied.

(5) When undistributed budgets exist, records should clearly identify their amount, purpose, and to which CWBS elements budgets are issued.

(6) Budgets which are assigned to work packages should not be changed (except as provided for in 3-8.c above) once they are started unless the scope of work is affected by contractual change or other reasons agreed to by the contracting parties.

(7) Retroactive changes to budgets or costs for completed work or to schedules are not made except for correction of errors or normal accounting adjustments, including revisions to budgets to reflect the formal negotiated value of completed tasks.

(8) Retroactive adjustments to BCWP based on substantiated work status to reflect more correctly the actual accomplishment may be appropriate. Widespread use of such adjustments due to erroneous BCWP would indicate unacceptable problems in the contractor's planning and control methods. Such widespread adjustments will require the contractor to review internal techniques for establishing BCWS and BCWP to minimize future requirements for such adjustments.

3-9. Material Management. This grouping of criteria statements is intended to expand on the application of performance measurement to both development and production material. The description of the material process in Appendix D provides some insight into the basics of material management. Because the material process cuts across several sections of the criteria, criteria statements that have been listed before will be repeated in this section. Only the aspects unique to material performance measurement will be covered.

3-9.a. Establish budgets for material items (2.d). The cost account budget should include all direct costs for the authorized work with separate identification of cost elements (labor, material, other direct costs). The CAM will normally rely on the materiel organization for assistance in the development of material budgets. Budgets should be based on defined/expected quantities of material items necessary to meet the requirements of the contract. The Bill of Material (BOM) for a contract is normally the basis for establishing material budgets. The values assigned to items in the BOM are normally based on vendor quotations, historical inventory pricing for the same or like items, catalog prices, and/or parametric estimates based on similar hardware elements. This latter method is usually applied during the early stages of a production contract if the final design of the system has not been completed or approved.

3-9.b. Establish work packages for budgeted material items (2.e). The establishment of material work packages for developmental material and production material can differ significantly. In a developmental effort, most material is consumed by the engineering organizations in the design and testing of potential hardware items. These work packages may be established within the same cost account as the labor that will consume the material.

Planning packages may be established for developmental type material items when design work has not progressed sufficiently to permit adequate definition of parts required. The budgets for these planning packages should be substantiated and segregated in some manner in order to ensure that budget designated for material procurement is not inadvertently used for other requirements.

In a production or multi-unit fabrication environment, material work packages may be established in material-only cost accounts. These accounts are summarized into the CWBS elements related to the hardware items being produced. Work packages may be made up of individual purchase orders, multiple purchase orders for similar items, all purchase orders for a hardware item (as long as valid price and usage information is available), or combinations of these conditions. The contractor should be allowed flexibility in the planning of production material work packages as long as the budgets accurately represent the manner in which material will be received, accepted, issued to work-in-process, or consumed. Budgets may not be planned based on the expected commitment dates for material, as this would cause significant distortion of performance measurement. The need for production material planning packages should be minimized since the design is normally stable, and the factory build schedule for the authorized units is known well in advance.

Planning of material budgets for both development and production should coincide with the occurrence of events that show physical progress. Administrative or financial events may be used as indicators for contract events when such indicators occur in the same reporting period as the contract events. It is not generally acceptable to use administrative or financial events as indicators when they would depict performance past the actual material use or need dates.

3-9.c. Controlling material as level-of-effort (2.h). As a minimum, LOE budgets for material must be separately planned and substantiated based on the type of material involved. Examples of LOE material include, low-dollar value items, miscellaneous consumable material, "pre-expended" bin items, etc.. Care should be taken not to plan critical, low-dollar value items as LOE, as this could distort schedule status for program performance.

3-9.d. Account for material purchased for the contract (3.g). In addition to the requirements of Accounting Criterion 3.a, the contractor should use recognized acceptable costing techniques to fully account for all material purchased for the contract in the accounting records.

In order to ensure that effective performance measurement of material takes place, the contractor’s accounting system should have the following characteristics:

(1) An accurate cost accumulation system which assigns material cost to appropriate cost account in a manner consistent with the budget. Actual costs for material items should be reported in the same accounting period that earned value is taken for the material.

(2) Where actual costs are not available in a timely manner, the capability to assign estimated costs to the material item, which will be adjusted when actuals are recorded in the accounting system. This may be done outside of the acounting systemm as long as the contractor is able to reconcile this value to the accounting system actuals.

(3) Recognized costing techniques acceptable to DCAA.

(4) Accounting for all material and purchased parts which, by their value and significance, warrant such attention. It is not cost-effective to require individual identification of such things as small hardware, miscellaneous wiring materials, and other items of a similar nature.

(5) Accurate recording of material transfers between contracts is required in the material accounting system.

(6) Capability to establish material cost variances attributed to material price changes as opposed to excess material usage.

(7) There are two preferred methods for budgeting for unanticipated excessive scrap (although other methods may be acceptable):

(a) MR may be used to increase the budget for the replacement lot (or increased subsequent lot size) which was required due to unusually large scrap; or,

(b) Negative BCWP can be assigned in the current period to recognize BCWP which had previously been overstated due to significant scrap. (Negative BCWP which appears on the Cost Performance Report should be explained in Format 5 of the CPR).

(8) In those instances where the contractor maintains separate stores inventory areas, actual or applied direct cost of "store" material or components will be removed from the inventory account and charged as actual direct cost to the contract when issued. Normally, all unused material should be returned to stores for disposition. Actual direct material cost includes the materials in the final product, scrap, damaged materials, and so forth, plus any material purchased for the contract but not used, for which an alternate use cannot be found. Unit cost projections for follow-on procurements would be expected to include material consumed in addition to material requirements for schedule assurance based on waste and spoilage trends.

The definition of applied direct costs takes into consideration the different types of material involved in a contract. Not all material items are processed through inventory accounts. High-dollar value items, such as major components or assemblies, are frequently scheduled for delivery in accordance with the manufacturing schedule. Items of this type are not usually scrapped if found defective, but are returned to the supplier for rework or repair. Under the applied direct cost approach, the costs of such items may be considered as applied direct material costs at the time they are received provided they are either scheduled for use within 60 days or are specifically identified to a unique, serially-numbered end item. The contractor's costing techniques for materials should be consistent with its Disclosure Statement or written accounting procedures (if applicable).

If a contractor's system is qualified on other than an "applied cost" basis, actual direct costs may be recorded upon receipt of material, when it is accepted, when it is withdrawn from inventory, or when it is issued to work-in-process, as appropriate.

Neither the applied direct cost approach nor any acceptable alternate should be interpreted to relieve the contractor of the need to maintain records of contract commitments for material.

3-9.e. Analyze material variances at the cost account level (4.a). Material BCWS and BCWP are intended to permit measurement of events which reflect progress in contract performance, not for the measurement of administrative or financial events (e.g., booking of actual costs or invoice payment). BCWS should normally be scheduled in accordance with a contract event, and BCWP should be earned when the event occurs. To avoid distortion, actuals should be recorded when BCWP is earned. In situations where BCWP is earned and the invoice has not been paid, estimated actual cost may be incorporated into ACWP from purchase order information. Analysis of variances for material accounts should focus on the identification of excess usage, i.e. usage incurred above the normal or exact quantities plus normal attrition amounts, versus price variances.

(1) Material price variance is an essential element of material cost control. This can be determined early in the cycle of ordering materials, at which point the purchase order value of the materials can be compared with the amount budgeted for that material. Accumulation of these differences represents the total material price variance. Various routines can be used to calculate this variance, but the system should readily provide such data. When it becomes known that material costs will vary from the amounts planned, the contractor should show these differences in the estimates of final costs.

(2) Material usage variance is an important cost factor on repetitive large volume, production-type jobs, but may be of marginal significance on single copy R&D equipment. Final material usage variances are not available until the work is completed. Acceptable cost accounting techniques for analyzing and determining current and projected usage variances, however, should be expected to provide continuing internal measurement when the value and nature of the material warrant. Contractors' systems must be capable of formally planning and tracking the cost of material usage. For most contractors, purchases of material in excess of bill of material requirements are standard practice for many categories of material. Planning for material usage allowance to cover scrap, test rejections, unanticipated test quantities, and the like, is a practical necessity, and the contractor should have records of such provisions. The more uncertain the expected usage, the more important it is to have a good plan and to keep track of performance against it, particularly for contract peculiar materials or materials which require long procurement lead-times.

The identification of excess usage that is expected to continue for future units is key in validating contract material quantities and requirements. Based on this analysis, appropriate action should be taken by the material CAM to ensure sufficient material is on hand/on order to complete contractual requirements.

3-9.f. Provide valid estimates of future material requirements (4.f). An annual comprehensive EAC and monthly updates to cost account level EACs are required for material cost accounts The basic process and guidance as contained in 3-6.d are applicable for material accounts.

The EAC process focuses on the cost account manager, but it should also provide for regular input from design engineering, production control, industrial engineering, material management, finance, and other functions which develop information that may impact material cost. Information relative to price variances at point of commitment, identified during the material procurement process, should be used to update the estimate at completion. This is in order to provide timely notification to management of expected/incurred price changes which may affect future costs on the current contract as well as future procurements. On production contracts, the evaluation of excess usage can lead to identification of increased material requirements necessary to maintain the production line at optimum capacity and to meet the contractual requirements. Excess usage information should be used to update the material EAC.

3-10. Subcontract Management. This grouping of criteria statements is intended to expand on the application of performance measurement to subcontracted efforts. The description of the subcontract management process in Appendix D provides insight into the mechanics of subcontract management. Because the subcontract management process cuts across several sections of the criteria, criteria statements that have been listed before will be repeated in this section. Only those unique aspects of managing subcontractors will be covered here.

3-10.a. Establish subcontract management organizations (1.b). When establishing the internal organization responsible for managing subcontracted efforts, the prime contractor must assign a manager with sufficient authority and responsibility to be able to ensure that the subcontractor will perform to the terms and conditions of the contract. This individual may be (a) a member of the prime contractor's program organization supported by a team of technical/cost/schedule personnel; (b) a single individual responsible for monitoring the subcontractors; or, (c) a member of the materiel or purchasing organization, tasked with the management of the effort. Whatever arrangement the prime contractor makes, the person(s) assigned has all of the same responsibilities as other cost account managers within the program organization.

3-10.b. Budget for the authorized subcontracted effort (2.d). The identification of budgets for subcontracted items is a result of the process of establishing the requirement for the item to be procured as a subcontract rather than purchased as a material item. This involves identification of the subcontractor, the establishment of an estimated value for the subcontract, and ultimately, negotiating the subcontract scope, schedule and budget. During this process, it is necessary for the prime contractor to establish a baseline for the effort at the cost account level. If multiple CWBS elements are involved, then multiple cost accounts or work packages will normally have to be established. During negotiations, the baseline values will normally be based on the prime contractor's estimate for the work as opposed to the subcontractor's proposal values. Once negotiations are complete, budgets are normally adjusted to reflect the negotiated value of the subcontract. Any other value used must be supportable.

The prime contractor may choose to track subcontractor "bottom line" values separately from individual CWBS elements. These items, e.g., overhead, General & Administrative (G&A), Cost of Money (COM), MR, UB, Profits and Fees, must be supported by information supplied by the subcontractor either in external performance reports or by supplying information from the integrated management system. When a subcontractor is required to comply with the criteria and provide an external performance measurement report, subcontractor data will be provided to the prime contractor for performance measurement purposes.

If a subcontractor is not required to comply with the criteria, the prime contractor should establish procedures which tie the planned and actual accomplishment of the subcontractor to valid indicators, such as the proposed payment schedule or completion of identified work segments. If a subcontract (including firm fixed price) is $1M or more, has at least six months between the beginning of work and the first significant delivery, and is scheduled to receive progress payments, then the prime contractor will normally be expected to measure in-process performance of that subcontractor prior to receipt by the prime of the product(s) being produced by that subcontractor. The prime contractor should establish procedures which tie the planned and actual performance of the subcontractor to valid indicators (such as milestones, completion of identified work segments, or proposed payment schedules where directly related to accomplishment).

3-10.c. Where necessary, establish work packages for subcontracted effort (2.e). Work packages may be established within subcontract cost accounts to provide for separation of subcontract activities for performance measurement purposes. When this is the case, the prime contractor must be able to support the values established within each work package using either subcontractor supplied information or internal documentation. These work packages must be related to the plan established by the subcontractor to complete efforts on the subcontracted items. Whether the contractor establishes a single work package or multiple packages to track subcontractor efforts, the scope, schedule and budget values should be supported by information provided by the subcontractor.

3-10.d. Budgeting for LOE subcontracts (2.h). As a minimum, budgets for LOE subcontracts must be separately planned and substantiated based on the type of effort involved. LOE activity should be budgeted on a time-phased basis for control and reporting purposes. LOE subcontracts will normally be for support-type activities, such as field support for testing and outsourcing of activities that were previously included as indirect costs (equipment maintenance, custodial services, security services, etc.).

3-10.e. Collect and report actuals for subcontracted efforts (3.a). To be acceptable, contractor accounting systems should provide the following:

(1) An accurate cost accumulation system which assigns subcontract costs to appropriate cost accounts or work packages in a manner consistent with the budget. Actual costs for subcontract items should be reported in the same accounting period as the associated earned value.

(2) Where actual costs are not available in a timely manner, the capability to assign estimated costs to the subcontract, which will be adjusted when actuals are recorded in the accounting system.

(3) The ability to account for all subcontracted items.

3-10.f. Provide effective analysis of subcontractor performance (4.a). Procedures established by the prime contractor for measuring the performance of the subcontractor must consider the following:

(1) the establishment of a process whereby the prime contractor evaluates the management processes established by the subcontractor to perform the cost, schedule and technical requirements of the contract.

(2) the requirement to review the subcontractor's performance report for accuracy and adequacy. This includes an independent analysis of the performance measurement information contained in the data formats of the report, an evaluation of the variance analysis information contained in the report, and an evaluation of management reserve usage, baseline changes and manpower changes.

(3) the capability to incorporate the subcontractor's performance measurement information, including analysis of significant variances, into the data submitted to the customer.

During the time period between subcontract ATP and definitization, the prime contractor must make provisions to perform the above actions based on best available information.

3-10.g. Generate valid EACs for subcontracted efforts (4.f). The procedures relative to subcontract EACs should focus on two aspects:

(1) they should ensure that the subcontractor will generate an EAC as necessary to support program requirements and reporting to the customer; and,

(2) the responsibility of the prime contractor to evaluate the subcontractor's EAC for adequacy and accuracy, and the requirement to appropriately modify that estimate in the customer's reports must be clearly established.

The EAC process focuses not only on the subcontractor but also the prime's subcontract manager within the prime's organization. The subcontract manager must ensure that the subcontractor is performing the required comprehensive EAC, as well as monthly evaluations of the internal cost account EACs. This information must then be updated by the subcontract manager and provided to the customer in the required external reports.

Chapter 4

Component Relationships

4-1. General Information. This chapter explains responsibilities of representatives concerned with implementation of the criteria. When applied to specific efforts, terms are intended to describe functions rather than organizations. Each government component may assign different designations, consistent with internal operations, to accomplish responsibilities associated with these terms.

4-2. Terms Explained. Several terms are used with reference to various activities responsible for criteria implementation. Significant terms used for this purpose are described below.

4-2.a. Government Component. The overall responsibility for implementation of the criteria within each government component is assigned to the designated focal point for C/SCSC responsibility; for example, AMCRM-E, ASN (RD&A), AFMC/FMC, BMDO/PO, FAA Code AND and NASA, Code BFC. When two or more components have collateral interest in application of criteria by a specific contractor facility, one is designated as the lead to organize C/SCSC review activities and provide liaison with DCAA and DCMC, as well as other applicable components through focal points described in 4-2(c) below. Various factors considered in the designation are:

(1) When a new contractual requirement involving criteria implementation exists or is imminent, the component responsible for the applicable procuring activity is the lead.

(2) When no new contractual requirement exists or is imminent, cognizant government representative responsible for contract administration will function as the lead. The Performance Measurement Joint Executive Group (PMJEG) may also participate.

(3) When there is any question about designation of the lead component regarding a specific contractor facility, the designation will be accomplished by mutual agreement through established focal points.

4-2.b. Procuring Activity. This term usually identifies the subordinate organization where the procuring contracting office is located. It includes the functional organizations that provide support to the program management organizations. Examples of procuring activities are Air Force Materiel Command Space and Missile Systems Center (AFMC/SMC); Army Materiel Command Missile Command (AMC/MICOM); Naval Sea Systems Command NAVSEASYSCOM), BMDO/Executing Agents, and NASA Goddard Space Flight Center (GFSC).

4-2.c. Focal Points. Each component establishes a focal point to serve as the principal point of contact for coordination and exchange of information on implementation of the criteria. The focal point is concerned at a policy level with establishment of contract provisions, the Advance Agreement, the letter of acceptance, and oversight of procuring command policy guidance implementation. Focal points within the lead organization are directly responsible for the following:

(1) Directing the overall organization of teams, scheduling reviews, approving review reports, and maintaining liaison with other component focal points.

(2) Reviewing and approving major changes (that is, those requiring interpretation of the criteria) to accepted systems.

4-2.d. PMJEG. The PMJEG provides uniform policy guidance and a forum to arbitrate any matters concerning C/SCSC reviews and other C/SCSC matters that cannot be resolved amicably through established focal points. This group is expected to solve problems before

they reach such magnitude that they would be referred to the Service Acquisition Executives (SAEs) individually or collectively.

(1) Officials designated to serve on the group represent the following organizations:

(a) Program Support Division, Office of the Executive Director for Program and Technical Support, Defense Contract Management Command (DCMC-AQCOF); Permanent Chair of the PMJEG.

(b) Cost Analysis Division, Deputy Chief of Staff for Resource Management, HQ Army Materiel Command(AMCRM-E).

(c) Acquisition Policy, Integrity and Accountability, Assistant Secretary of the Navy (Research, Development and Acquisition(ASN(RD&A)).

(d) Directorate of Financial Management and Comptroller, HQ Air Force Materiel Command(AFMC/FMC).

(e) Deputy Director for Program Operations (PO), Ballistic Missile Defense Organization (BMDO/PO).

(f) Director, Special Audits Division (OAD), Defense Contract Audit Agency (DCAA).

(g) Office of the Under Secretary of Defense (Acquisition & Technology(OUSD (A&T)).

(h) Office of Plans, Program Controls Division, N255-01, National Security Agency(NSA).

(2) Additional participants include:

(a) Director of the Cost/Schedule Division, Defense Systems Management College (DSMC)

(b) National Aeronautics and Space Administration(NASA), Code BFC.

(c) Defense Acquisition University(DAU).

(d) Federal Aviation Administration(FAA).

4-2.e. Contract Administration Office. This is the cognizant office which is assigned to administer contractual activities at a specific facility. It is a general term and includes Defense Plant Representative Offices (DPROs), Defense Contract Management Area Offices (DCMAOs), Supervisor of Shipbuilding (SUPSHIPS), and Army Industrial Operations Command (IOC) for Army Ammunition Plants and Arsenals. The cognizant CAO will be part of the Defense Contract Management Command (DCMC) under DLA with the exception of SUPSHIPS for the Navy and IOC for the Army. Additional guidance regarding CAO functions is provided in Chapter 6.

4-2.f. Contract Auditor. This is the representative of the cognizant audit office designated by the DCAA as responsible for conducting audit reviews of the contractor's accounting system policies and procedures for compliance with the criteria. The auditor participates in integrated management system reviews and subsequent surveillance.

4-3. C/SCSC Review Teams. The procuring activity of the lead component will organize a team of qualified individuals to conduct in-plant reviews of the contractor's management control systems. If an Advance Agreement was signed as part of the proposal and negotiation process, the team may include representatives from the contractor's organization, both technical and financial, and they may, with the mutual agreement of the contractor, become an integral part of the team. The purpose of these reviews (demonstration and extended subsequent applications) is to verify that the contractor is operating systems which meet the criteria. In addition, post-acceptance reviews are conducted to ensure continuing application of the approved system to new contracts.

4-3.a Team Composition. Review teams are normally composed of:

(1) Review Director. The component focal point will approve the appointment of the review director and will inform the other component focal points of those appointments.

(2) Team Chief. The component focal point will approve the appointment of the team chief and will inform the other component focal points of these appointments.

(3) Team Members. Teams will be composed of qualified representatives from the program office, applicable functional offices, as well as the cognizant CAO, and the cognizant resident or branch audit office. Where an Advance Agreement was proposed and negotiated, contractor representatives, both technical and financial, may be assigned as team members.

4-3.b. Operation of Team. The team is responsible for a rigorous assessment of either the contractor's compliance with the criteria or successful implementation of an approved system on a new contract. Such assessment should include review of management control techniques used by contractor organizational elements which perform work on the contract. Team size and types of expertise of members will be determined by the requirements: for example, the type of review, contract size, contractor characteristics and program characteristics. Specifically, team members are charged as follows:

(1) Review Director. The review director will lead and supervise team efforts in collaboration with representatives from the PM's office, major commands, major subordinate commands, field activities, and other components selected to work with each C/SCSC review team. The review director will approve composition of the team. The director may be concerned with more than one team simultaneously and will furnish policy guidance, liaison with other focal points, and interpretation of the criteria to the team chief and team members.

(2) Team Chief. The team chief will organize lead, and supervise team members in reviewing the application of the criteria or the subsequent application of the approved system by a specific contractor. The team chief reports to the review director and is in contact with other components through the review director. The team chief is also responsible for ensuring that the review team is staffed with qualified personnel. Where necessary and feasible, pre-review training will be conducted by the team chief to ensure team familiarity with the contractor's system.

(3) Team Members. Team members will be responsible to the team chief for the completion of their assignments. To the extent possible, the team chief assigns tasks consistent with background and qualifications of team members and will supervise their efforts during the course of the review. Members should be full-time participants during reviews. The team, however, may be augmented with functional specialists to assist in specific aspects of a review. For example, an assigned auditor from DCAA will normally be part of the review team. The assigned auditor will obtain technical advice from the audit supervisor as necessary. Team members should not design or recommend changes to systems to meet the criteria. Recommendations for system improvements should be forwarded to the Review Director and/or the TC for evaluation and discussion with the contractor.

4-3.c. Qualifications of Members. Normally, members should possess one or more of the following qualifications:

(1) Knowledge of the technical content of the program or contract.

(2) Knowledge of the principal engineering design and test requirements of the activity under review.

(3) General industrial engineering/production control background.

(4) Accounting/auditing knowledge.

(5) Program planning and control experience.

(6) Management analysis and/or cost/price analysis experience.

(7) Contract negotiation or administration experience.

4-3.d. Training. All members should receive training in the evaluation of integrated management control systems before participating as team members. Formal training classes in the evaluation, review, and surveillance of integrated management systems(IMS) are available through courses established by the DAU or locally as appropriate and described in applicable catalogs. On-the-job training will be provided, when feasible, to enlarge upon background experience, and classroom training will be conducted for members without prior review participation experience.

4-4. Coordination:

4-4.a. Advance Planning. The focal point in the lead component will inform focal points in other components concerning the starting date and estimated duration of the review as far in advance as possible. Applicable focal points will then inform the lead component focal point for coordination as to whether they intend to participate in the review. If so, they will identify their representatives for the review team.

4-4.b. Administration:

(1) The team chief will make all necessary arrangements to ensure availability of team members for the time required for preliminary indoctrination, training, and each review for which a team member is needed. Members will be administratively responsible to the team chief during the period of the review.

(2) If another review is necessary to determine the correction of observed deficiencies, or to cover another phase of the program, the same team members should be reassembled if possible.

Chapter 5

INTEGRATED MANAGEMENT SYSTEM REVIEWS

5-1. General Information. This chapter defines the process for performing initial compliance reviews of proposed integrated management systems as well as reviews of subsequent implementations of the approved system. It provides guidance on the approaches, preparations for and the performance of these reviews. The preparation of reports resulting from these reviews is covered in Appendix B.

5-2. Demonstration Review (Demo) Process.

5-2.a. Policy. When it has been determined that the criteria will be applied to a specific major system acquisition (See paragraph 2-2), generally it will be as:

(1) a requirement within a new contract(s), usually first expressed in a solicitation document , or

(2) a requirement of an existing contract(s), subject to bilateral agreement between the contractor and the government.

When the application of C/SCSC is required, it is the general policy of government procuring activities to ensure that:

(1) no changes to contractors' existing integrated management systems are made except those necessary to meet the intent of the criteria;

(2) the contractor has properly implemented the integrated management system on the contract(s) under review; and,

(3) the contractor is using the data from its own integrated management system(s) in reports to the government.

5-2.b. Definition. The Demonstration Review is a formal review conducted to assess the contractor’s proposed integrated management system relative to compliance with the C/SCSC. It focuses on those processes defined and used by the contractor to manage major acquisitions in an earned value environment.

5-2.c. Objectives. The primary objectives of the Demonstration Review are:

(1) to evaluate management system capabilities against the concepts contained in the Cost/Schedule Control Systems Criteria (C/SCSC);

(2) to assess the description of the management system to determine if it adequately describes the management processes being reviewed; and

(3) to evaluate the application of the management system on the contract being reviewed.

5-2.d. Basis for Application. DFARS Clause 252.234-7001, Cost/Schedule Control Systems, requires that the contractor be prepared to demonstrate that the contractor's integrated management system meets the criteria. The clause also provides that "If the contractor...is utilizing Cost/Schedule Control Systems which have previously been accepted,...the Contracting Officer may waive all or part of the provisions concerning demonstration and review" (DFARS clause, Appendix A).

This clause covers the requirements of the criteria and other conditions as follows:

(1) Requires the contractor to establish, demonstrate, and use an integrated management system which meets the criteria.

(2) Requires the contractor to obtain approval of changes affecting the accepted management system description.

(3) Provides for government access to pertinent records and data associated with the integrated management system.

(4) When mutually agreed upon by the procuring activity and the prime contractor, the criteria will be applied to selected subcontractors, based upon such factors as criticality to program, contract type, and/or dollar value. In these cases, the prime contractor will contractually require subcontractors to comply with the criteria. Subcontracts selected for application of the criteria should be identified in the prime contract.

(a) After a prime contractor has reviewed and accepted a subcontractor's management control system, the prime contractor should provide the subcontractor with a written statement that documents the acceptance. Such acceptance does not establish government acceptance and does not apply to contracts or subcontracts from prime contractors on other government programs.

(b) Review and acceptance of these selected subcontractors' integrated management system may be performed by the procuring activity in coordination with the prime contractor when requested by either the prime contractor or subcontractor. Such review and acceptances will be accomplished in accordance with paragraph 5-2.i.

5-2.e. Determination of Review Focus. Since the contractor's integrated management systems utilized during development and during production are usually significantly different from each other, separate demonstration reviews will normally be required. The contractor may request simultaneous reviews of the systems used for development and production contracts, or a contractor may have one system for both types of contracts. This eliminates the necessity for multiple reviews. The production system demonstrated to gain acceptance, however, should be of such an extent that its review will demonstrate its applicability to production contracts that warrant the imposition of the C/SCSC. In determining the category of review (development or production) to be accomplished, the following issues should be evaluated:

(1) If the manufacturing effort in the contract is not true manufacturing (e.g., model shop work), and there is no major difference from the method used for the engineering effort and in the way the work is planned and controlled and cost data are collected, then the review can be based on the application of a development system.

(2) If the preponderance of discrete effort in the contract is identified as either engineering or manufacturing, then the identification of the review as development or production should be self evident.

(3) If there is little or no manufacturing effort (e.g., contracts for long-lead items, engineering services, or production planning), the contractor can apply either an accepted development or an accepted production system regardless of funding.

(4) The type of funding should be considered, but it should not override other considerations.

5-2.f. Responsibilities. The component focal point has the authority and responsibility concerning the Demonstration Review for selection of the review director; approval of type, scope, and extent of the review; approval of team recommendations; and, approval of the report. The review director approves the assignment of the team chief and team membership. The areas of review to be emphasized must be established by the review director at the outset of the review.

5-2.g. Team Composition. Team members for the review must have the qualifications outlined in Chapter 4. The members should be experienced and understand the C/SCSC. Knowledge of both the program and the contract is desirable. Formal training, such as that provided by the members schools of the Defense Acquisition University (DAU), is a requirement that normally will not be waived. The review director, team chief, and members will be formally assigned to the team. It is essential that the team include members from the

PMO. Where appropriate, contractor personnel may be invited to participate as team members during the review.

5-2.h. Prior Acceptance. Contractors whose integrated management systems were accepted for application to another contract of the same type (for example, development or production) at the same facility will not be required to undergo a demonstration review on a new contract unless significant modifications have been made to the previously accepted systems, or surveillance reveals that the accepted systems have not been operated as contractually agreed to in the prior contract. This applies to all accepted systems, whether covered by an advance agreement or not.

5-2.I. Relationship to the IBR. As part of the Demonstration process, it is normal to conduct an Implementation Visit and Readiness Review. Every effort should be made to combine the IBR with one of these reviews, preferably the Readiness Assessment. However, completion of the IBR should not be delayed to accommodate scheduling of the IV or RA. The results of the IBR should be used by the Review Team Chief to establish the scope of the upcoming review.

5-2.j. Conduct of the Review.

5-2.j(1). Implementation Visit (IV). As soon as possible after contract award, preferably within 30 days, representatives of the review team should visit the contractor's plant and review the contractor's plans for implementing the C/SCSC. The IV includes an initial review of the system description. Areas of noncompliance or potential problems will be identified. This visit provides an early dialogue between the lead command and the contractor relative to the demonstration review process. During this preliminary review the contractor will usually make presentations to reflect the systems' design and operation and explain applicable reports. The team will examine selected documents and procedures proposed by the contractor and a schedule will be developed for the readiness assessment and IBR, and the demonstration review.

5-2.j(2). Readiness Assessment (RA). The RA is a meeting or series of meetings, usually three-to-five days duration, held by representatives of the review team with the contractor before the demonstration review. Without involving the time and expense of the full government and contractor teams, it provides an opportunity to review contractor progress toward implementing the criteria, to resolve misunderstandings, and to assess the contractor's readiness to demonstrate a fully integrated management control system. It assists in the government's preparation for demonstration review by familiarizing key team members with the fundamentals of the contractor's systems. Any discrepancies should be identified to the contractor for correction. Team members should not design or recommend changes to systems to meet the criteria. Recommendations for system improvements should be forwarded to the review director and/or the team chief for evaluation and discussion with the contractor. Where actual deficiencies have been identified, the contractor will be afforded an opportunity to correct them. Every attempt should be made to finalize the system description during the RA.

5-2.j(3). Integrated Baseline Review. Based on the schedule agreed to at the conclusion of the IV, an IBR will be conducted. (See paragraph 5-3). It should be the team’s goal to conduct the RA and IBR concurrently. The objective of the combined review would be to validate the technical content of the PMB and to assess the contractor’s progress towards full design and implementation of a valid, integrated management system. The IBR may be conducted independent of the RA if the RA is delayed or it is more cost and time effective to do so. The key to the IBR schedule is the establishment of the baseline, regardless of the maturity of the IMS documentation. The RA Team Chief should correlate review activities with the PM to ensure the most efficient utilization of government and contractor resources. The

results of the two reviews are used to “scope” the content of the demonstration review. Based on the teams conclusions and the perception of the contractor’s support for the earned value management concept, the level of government involvement in the demonstration review could be greatly reduced.

5-2.j(4). Demonstration by the Contractor. The demonstration review will begin as soon as practicable following the contractor's implementation of the integrated management system. The review team will examine the contractor's working papers and documents to ascertain compliance and document its findings. For this purpose, the contractor will be required to make available to the team the documents used in the contractor's integrated management system; for example, budgeting, work authorization, accounting, and other documents which apply to the specific contract(s) being reviewed. The documentation must be current and accurate.

(a) The contractor will demonstrate to the team how the integrated management system is structured and used in actual operation. The contractor will make available all appropriate internal planning and control documentation required for an in-depth analysis of the adequacy of the system in relation to the criteria and the work under contract.

(b) The contractor should have current written descriptions available which describe the integrated management system. Applicable portions of the systems descriptions and operating procedures must also be available at the contractor's operating levels.

5-2.j(5). Conduct of the Demonstration Review: The Integrated Management System Evaluation Guide (Appendix E) and the information in Chapter 3 of this guide will be used by the review team for conducting an in-plant demonstration review of a contractor's integrated management system. Use of the evaluation guide will ensure completion of an orderly, comprehensive and conclusive review. While it is not required that a completed Evaluation Guide (Appendix E) be a part on the contractor's system description, completion of the "System Description References" block by the contractor will facilitate the review team's conduct of the review. (Responsibilities of the various team participants are described in Chapter 4 of this guide.)

(a) The review will consist of five basic activities. These are:

(1) An overview briefing by the contractor to familiarize the review team with the proposed management control system, identifying any changes which have occurred since the Readiness Assessment.

(2) A review, on a sample basis, of the documentation which establishes and records changes to the contractor's baseline plan for the contract. This will include work authorizations, schedules, budgets, resource plans, and change records (including management reserve and undistributed budget logs). The purpose is to verify that the contractor has established and is maintaining a valid, comprehensive integrated baseline plan for the contract. (A successful IBR should obviate the need for this portion of the review.)

(3) A review, on a sample basis, of the reporting of cost and schedule performance against the baseline plan, along with appropriate analyses of problems and projection of future costs. Also, a tracing of the summarization of cost/schedule performance data from the lowest level of formal reporting (normally the cost account level) to the external performance measurement report. The purpose of this activity is to verify the adequacy of the control aspects of the systems and accuracy of the resulting management information.

(4) Interviews with a selected sample of cost account, functional work teams and program managers to verify that the contractor's integrated management system is fully implemented and being used in the management of the contract.

(5) An exit briefing covering the team's findings. During this briefing, any open system discrepancies should be discussed along with the contractor's corrective action plan which establishes responsibility and a time-frame for corrective action.

NOTE: In all of the foregoing activities, the sample actually reviewed should be sufficient to verify the compliance and implementation of the integrated management system. While it may not be necessary to review 100% of all documentation and program personnel, too small a sample may not provide sufficient visibility into possible system problems. Samples should be carefully selected to focus on the areas of greatest cost risk. If significant problems are found, the sample size, and, if necessary, the duration of the review, should be extended.

5-2.k. Review Results. The burden of proof for demonstrating compliance rests with the contractor. The review team will assess compliance with the criteria and will categorize all deficiencies as follows:

5-2.k(1). Level 1. Criteria non-compliant, significant deficiencies which directly affect performance measurement; or deficiencies resulting from failure to implement approved processes. Correction of the deficiency must occur before the review can be closed.

5-2.k(2). Level 2. Less significant, still-need-to-fix deficiencies which may affect performance measurement, but are not serious enough to require complete correction before the review can be closed; or minor deficiencies which have little or no impact on performance measurement and are too insignificant to require keeping the review open.

5-2.k(3). Corrective Actions. For both level 1 and level 2 deficiencies, the contractor must initiate a corrective action plan to resolve all identified discrepancies in a timely manner. Under normal circumstances, Level 1 deficiencies will require additional review team participation to verify satisfactory corrective action. Level 2 deficiencies will generally require a DCMAO/DPRO or DCAA FAO assessment of satisfactory action (separately or as part of routine surveillance). A schedule for implementing solutions and for a subsequent demonstration review to determine acceptability will be agreed upon by the contractor and review director.

5-2.l. Acceptance. At the conclusion of the demonstration review, a formal report will be prepared by the team chief and submitted to the review director within 30 working days after completion and approval of all corrective actions. Appendix B discusses in detail the format and content of the report.

5-3. Integrated Baseline Review (IBR) Process.

5-3.a. Policy. For all contracts requiring compliance with the criteria successful implementation of the PMB will be substantiated through the conduct of an Integrated Baseline Review (IBR). This review will be conducted within six months of contract award. The intent of the IBR is to institutionalize a process which facilitates the involvement of the program manager and the program technical staff in the management of the program using performance measurement information. Successful completion of the IBR should mitigate the requirement for subsequent C/SCSC reviews and will improve use of earned value data by contractor and government managers.

5-3.b. Definition. An IBR is a formal review conducted by the government program manager and technical staff following contract award to verify the technical content of the performance measurement baseline. An IBR will also be performed when work on a production option of a development contract begins or, at the discretion of the program manager, when a major modification to an existing contract significantly changes the existing PMB. When major events occur within the life of a program, e.g. PDR, CDR, etc., and a significant shift in the content and/or time-phasing of the PMB occurs, the PM may conduct a review of those areas affected by the change.

5-3.c. Objectives. The primary objectives of IBRs are:

(1) to ensure that the technical content of work packages and /cost accounts is consistent with the contract scope of work, the CWBS, and (if applicable), the CWBS dictionary;

(2) to ensure that there is a logical sequence of effort planned consistent with the contract schedule;

(3) to assess the validity of allocated cost account and SECP budgets, both in terms of total resources and time-phasing;

(4) to conduct a technical assessment of the earned value methods that will be used to measure progress to assure that objective and meaningful performance data will be provided;

(5) to review other performance measurement documentation to ensure that the earned value management processes have been successfully implemented; and,

(6) to establish a forum through which the government program manager and the program technical staff gain a sense of ownership of the cost/schedule management process. By understanding the internal earned value management system, government and contractor technical counterparts can jointly conduct recurring reviews of (PMB) planning, status, and estimates at completion to ensure that baseline integrity is maintained throughout the life of the contract.

5-3.d. Basis for application. DFARS Clause 252.234-7001, Cost/Schedule Control Systems, requires that the contractor be prepared to demonstrate that the contractor's integrated management system meets the criteria. The clause also provides that "If the contractor...is utilizing Cost/Schedule Control Systems which have previously been accepted,...the Contracting Officer may waive all or part of the provisions concerning demonstration and review" (DFARS clause, Appendix A). The successful conduct of an IBR should form the basis for a decision by the contracting officer to waive any subsequent C/SCSC reviews.

5-3.e. Responsibilities.

5-3.e(1). Program Manager. As the primary beneficiary of the IBR process, the program manager is responsible for the timeliness and successful execution of the review and will participate in a lead role, or designate a senior member of the technical staff to lead, along with sufficient program office engineers/program management team members. The process requires the immediate and continuing involvement and support of the program manager and the program technical staff. As part of the program management process, a government Responsibility Assignment Matrix should be established and maintained to designate program office personnel who will be accountable to the program manager for monitoring integrated cost, schedule, and technical progress in their respective CWBS or scope of work tasks throughout the life of the contract.

5-3.e(2). C/SCSC Support Organizations. The C/SCSC matrix support organization should provide assistance in:

(a) training the program office staff in the conduct of the review as well as all aspects of earned value management;

(b) providing qualified personnel to assist in conducting the review; and,

(c) providing the deputy team leader to evaluate implementation of the approved integrated management system and determining the need for subsequent C/SCSC reviews.

5-3.e(3). CAO and DCAA. The CAO and the DCAA FAO have responsibilities relative to informing the government program manager and the component focal point of any either integrated management system deficiencies or program implementation problems that would preclude the successful conduct of an IBR. Moreover, the CAO and DCAA FAO will provide resources necessary to support the conduct of the review.

5-3.f. Integrated Baseline Review Approach:

5-3.f(1). Review Duration. The review is be conducted at the prime contractor's facility and should normally take no longer than three days. The duration, however, should be based on the size of the contract, number of cost accounts to be reviewed, number of contractor managers to be interviewed, and other factors. These factors will also facilitate determining the size and makeup of the review team.

5-3.f(2). Selection and Composition of Team. The IBR team will be composed of a team leader (the program manager or his designee), a deputy/assistant team leader (from the C/SCSC matrix support function), engineers and other technical personnel, and, to a lesser degree, by other program management personnel, C/SCSC matrix support personnel, CAO (both technical and CPM personnel) and DCAA personnel. The team may include other functional specialists who support the program and could make a contribution to the review process. The selection of program office and CAO technical personnel as team members must be based on their responsibility assignments within the project for the cost, schedule, and technical performance of CWBS or scope of work effort to be examined during the review.

5-3.f(3). Orientation Visit. The contractor program manager, the business/program controls manager, and the company's C/SCSC focal point should visit the government program manager as soon as possible after contract award. The purpose of this visit is to provide the entire government program office staff with a presentation on the integrated management system being implemented on their contract, as well as the implementation schedule and current status. The CAO should be requested to share their perspective of the integrated management system and its implementation on the contract. This is a means of placing early emphasis on the process and will familiarize the program office staff with the system their contractor uses for cost/schedule/technical management. Assistance from the C/SCSC matrix support organization is also appropriate for this visit. This visit may be conducted as part of the training provided to the program office.

5-3.f(4). Training. A significant level of training for the technical staff is essential to ensure that performance measurement information is a useful management tool for the program office. This training must not only focus on how to conduct an IBR but must also provide for a thorough conceptual understanding of the basics of earned value based performance measurement, specifics of the contractor's integrated management system, and the recurring review and analysis of the baseline and performance data. An orientation visit is an integral part of the training process. While more formal, institutional training is available, the requirement to provide program specific training on a recurring basis will not be waived. Support personnel, including the cognizant CAO/DCAA representatives, should be invited to participate in the training program. The enhanced training program should include, but not be limited to, the following:

5-3.f(4)(a). Basics of Earned Value Management Course. Local training on the basics of earned value should be provided for all personnel associated with the program with refresher training offered as required to accommodate changes in staff. Effort should be made to incorporate the specifics of the contractor's integrated management system into the basics course(s).

5-3.f(4)(b). IBR Workshop. Prior to the IBR, the leadership of the IBR Team will conduct a workshop for the review team covering how the review will be conducted. The purpose, objectives, agenda, expectations of team members, techniques/approach for conducting interviews, and expected outcome must all be clearly understood by the team. Samples (live data) of the contractor's work authorization documents, cost account plans, earned value methods, and other program documentation should be available and reviewed. Refresher training of the contractor's terminology and internal processes presented during the

orientation visit should also be covered as appropriate. An invitation should be extended to the contractor for a representative to attend the government IBR workshop.

5-3.f(4)(c). Contractor Sponsored Training. In instances where the contractor's C/SCSC focal point provides training in the integrated management systems, the program office should request to participate in these training opportunities.

5-3.f(4)(d). Analysis Training. The program office technical staff will require initial and recurring specialized training in baseline planning and performance analysis techniques in order to fulfill their assignment for integrated cost, schedule, and technical responsibility for their CWBS or SOW tasks. This is the foundation for interfacing with their contractor counterparts for cost/schedule management and monthly performance status assessments of their element(s) in the CWBS or SOW. Since institutional training opportunities tend to cover broader aspects of overall data analysis, this specialized and focused training for the program office technical staff is essential.

5-3.f(5). Preparation for the Review. The program office should obtain a Responsibility Assignment Matrix (RAM)(stated in dollars and/or hours) to be used in determining the contractor managers to be interviewed and specific cost accounts to be reviewed. Consideration in the selection process should include discrete hardware/software areas, subcontract effort, high risk areas, and/or large dollar accounts. The program office technical staff should provide input to the selection process. Close coordination with the contractor is essential in establishing a mutual understanding of the IBR process and the specific documentation to be reviewed.

5-3.f(6). Conducting the Review.

(a) The IBR process is a streamlined approach to assessing the PMB on new contracts. The assumptions are that the contractor is using the integrated management system internally for program management and that there is a thorough and effective surveillance program ongoing at the facility. This review, therefore, is not as comprehensive as other post-acceptance reviews discussed later in this chapter and the use of the Evaluation Guide, Appendix E is not appropriate. The review will consist of four basic activities. These are:

(1) An overview briefing by the contractor to familiarize the review team with the accepted integrated management system.

(2) An overview briefing by the CAO technical staff/program integrator covering the current status of baseline implementation.

(3) Interviews with a selected sample of contractor managers to review documentation which establishes the contractor's baseline plan for the contract. This documentation includes work authorizations; schedules; cost account work package/planning package budgets; and, measurement methods. The purpose is to verify that the contractor has established and is maintaining a valid, comprehensive integrated baseline plan for the contract. These interviews will be conducted primarily by the program office technical team members. Support by the C/SCSC matrix support organization will assist the technical team members in the assessment of system processes used to establish the baseline.

(4) An exit briefing by the review team covering the team's findings. During this briefing, any program office action items should be discussed. All open system concerns should be identified along with the agreed upon corrective action plans which establish responsibility and a time-frame for corrective action.

(b) Major subcontracts/Intra-company effort. Effort performed by external organizations poses a unique challenge for the review. The process necessitates an assessment of baseline planning at the cost account/work package level which is accomplished, in part, by interviewing the responsible managers. Three problems may exist:

(1) The prime contractor normally does not maintain work package detail for external effort (e.g. subcontracts with a performance measurement flowdown requirement);

(2) At the time of the review these efforts may not be negotiated and the subcontractor may therefore lack firm baseline planning data; and

(3) Even if the subcontractors have baselined their effort, the participation of subcontractor cost account managers at the prime's facility may significantly increase the review attendance and make the process unmanageable.

Where there is a significant amount of subcontract/intra-company effort and/or these conditions exist, separate joint government/prime reviews should be conducted at the subcontractors facilities involved. The review at the prime contractor's facility should therefore focus on an assessment of the responsible (prime) contract manager's process for management of subcontract cost, schedule, and technical performance.

5-3.f(7). Review Results. The IBR should provide for a program office overall assessment of both the integrity of the baseline planning and the status of integrated management system implementation. The process is designed to provide for better insight into risk areas, mutual understanding of SOW requirements, and confidence in the reasonableness of the contract target. At the conclusion of the review, all concerns requiring contractor/government resolution should be identified and, if not already resolved, estimated dates for resolution established.

5-3.f(8). Findings. Technical issues identified as a result of the review should be brought to closure by the program office and CAO with the contractor. With regard to baseline and integrated management systems implementation, two levels of findings are possible:

(a) Major Concerns. Criteria non-compliant, significant issues which directly affect performance measurement; or inadequate implementation of an approved integrated management system.

(b) Minor Concerns. Less significant issues which may affect performance measurement or minor problems which have little or no impact on performance measurement.

5-3.f(9). Further Review. The contractor must initiate a corrective action plan to achieve resolution in a timely manner. Problem resolution will be verified by the surveillance team. If there are Major Concerns, members of the IBR team, including the representative of the C/SCSC matrix support organization, will participate with the surveillance team to verify satisfactory corrective action. Failure to correct Major Concerns can result in the decision to conduct a Subsequent Application Review. The resolution of Minor Concerns will normally be assessed by the surveillance team.

5-3.f(10). Report. There is no formal report required at the conclusion of the IBR. The program manager may establish a requirement for documentation of the review but the content and format of this report are at the PM's discretion. The contractor will either receive letter notification of a successful accomplishment of the review, or notification of the findings with an expectation that they will be satisfactorily resolved, in a timely manner, through the surveillance program. A copy of the letter with any special instructions will be sent to the surveillance team. The component C/SCSC focal point will be advised relative to the findings of the review either by separate correspondence or with a copy of the letter to the contractor. This information will be used to support a decision relative to the SAR requirement.

5-4. Extended Subsequent Application Review (ESAR).

5-4.a. Policy. The intent of conducting an ESAR is to minimize unnecessary repetition of work previously performed in the demonstration review. Its length and scope are limited. The ESAR will be performed in lieu of a complete C/SCSC demonstration review under circumstances described in paragraph 5-4.d below when:

(1) A contractor or subcontractor is contractually required to apply C/SCSC and is using an integrated management system which has already been accepted.

(2) The CPM Monitor in the CAO confirms that the accepted system has been or is being operated as approved in the prior or current contracts.

5-4.b. Definition. An ESAR extends a previously accepted system from one contractor facility to another, one contract phase to another (i.e., development to production), or, it can extend the validation of a previously accepted system description to a significantly revised system description when major processes have been modified.

5-4.c. Objectives. The primary objectives of an ESAR are:

(1) to evaluate system capabilities not previously reviewed against the criteria;

(2) to assess rewritten or extensively revised and updated system descriptions reflecting changes in management processes previously approved; and,

(3) to assure the application of the accepted systems with approved changes to all portions of the applicable contract.

5-4.d. Basis for Application. When a contractor facility has an accepted system for the proper acquisition phase, the type of review will be determined by the component focal point. The component focal point will make the final recommendation to the contracting officer as to whether an ESAR or a demonstration review will be required of the contractor, considering such relevant factors as:

(1) Assessment of CAO and DCAA FAO surveillance findings; and,

(2) Current and prior experience of other Government program offices requiring C/SCSC application by the contractor.

5-4.e. Responsibilities. The component focal point has the authority and responsibility concerning the ESAR for be coordinating the review with the affected government components, selection of the review director; approval of type, scope, and extent of the review; approval of team recommendations; and, approval of the report. The review director approves the assignment of the team chief and team membership. The areas of review to be emphasized must be established by the review director at the outset of the review

5-4.f. Relationship to the Integrated Baseline Review (IBR. As part of the ESAR process, it is normal to conduct an Implementation Visit and/or Readiness Assessment. Every effort should be made to combine the IBR with this review. However, completion of the IBR should not be delayed to accommodate scheduling of the IV or RA. The results of the IBR should be used by the ESAR Team Chief to establish the scope of the upcoming review.

5-4.g. Conduct of the Review. The review will be scheduled based on written government notification. The team composition and the duration of the review should be the minimum necessary to accomplish the task. Normally, ten workdays should be sufficient for the ESAR. The review is usually led by the office which conducts demonstration reviews, and it includes participation by the Government program management office, by the cognizant CAO, and by the DCAA representatives. Where appropriate, contractor personnel may be invited to participate in the review. Those portions of the integrated management system designated for review, to assure that the extension meets the criteria, must be described at the start of the review. Additionally, a review of any previous review and surveillance reports should be made to identify areas of special interest:

(1) Portions of the integrated management system where implementation problems have occurred so the team may do a more in-depth evaluation; or

(2) Where the contractor has shown good implementation techniques so these areas may be de-emphasized during the review.

5-4.h. Review Procedures. The basic review routine is similar to that of a C/SCSC demonstration review. The direct use of the Evaluation Guide, (Appendix E), is appropriate. It is to be carefully noted, however, that it is not intended to be pursued to the extent that it would result in a full re-evaluation of the contractor's integrated management system. The review will consist of six basic activities:

(1) A briefing by the contractor to familiarize the team with the accepted integrated management system, identifying any changes which have occurred since the system was last reviewed, especially those changes which provide for the requested extension of the system.

(2) A review of the system to establish that it is in fact the accepted system.

(3) A review, on a sample basis, of the documentation which establishes and records changes to the contractor's baseline plan for the contract. This will include work authorizations, schedules, budgets, resource plans, and change records (including management reserve and undistributed budget logs). The purpose is to verify that the contractor has established and is maintaining a valid, comprehensive integrated baseline plan for the contract.

(4) A review, on a sample basis, of the reporting of cost and schedule performance against the baseline plan, along with the appropriate analyses of problems and projections of future costs. Also, verifying the summarization of cost performance data from the lowest level (normally the cost account level) of formal reporting to the external performance measurement report. The purpose of this activity is to verify the accuracy of reported information.

(5) Interviews with a selected sample of contractor managers to verify that the contractor's previously accepted integrated management system is implemented fully and being used in the management of the contract. The system description should also be evaluated both before and during the review to assure that the integrated management systems being applied to the contract are accurately and completely described.

(6) An exit briefing by the review team covering the findings. During this briefing any open system deficiencies should be discussed along with the agreed upon corrective action plan which establishes responsibility and schedule for corrective action.

NOTE: In all of the foregoing activities, the sample actually reviewed should be sufficient to meet the intent of the review. Samples should be carefully selected to focus on the areas of greatest cost and/or schedule activity, complexity, and risk. Care should be taken to assure that the criteria are satisfied if the ESAR is for a phase different from that originally accepted. Identification of significant problems may require a follow-up visit to complete the review.

5-4.I. Acceptance. At the conclusion of the ESAR, a formal report will be prepared by the team chief and submitted to the review director within 30 working days after completion and approval of all corrective actions. Appendix B discusses in detail the format and content of the report.

5-5. Subsequent Application Review.

5-5.a. Policy. A SAR is a formal review performed when it is a contractual requirement and one or more of the following conditions exist:

(1) the assessment of the CPM Monitor substantiates that the contractor has failed to take adequate and timely corrective actions on Major Concerns resulting from an IBR;

(2) the integrity of the performance data is evidence of failure to maintain and utilize the accepted system as a management tool;

(3) a successful IBR has not been conducted which verified that the contractor has properly implemented the integrated management system; or,

(4) the need for a SAR is indicated by current and/or prior experience of PMOs, CAOs, and/or DCAA.

5-5.b. Definition. A SAR is a formal review performed in lieu of a demonstration review when compliance with the Cost/Schedule Control Systems Criteria is a requirement in a contract at a facility where the integrated management system has been accepted for the same type of contract (e.g., development or production). Because the intent of conducting a SAR is to minimize unnecessary repetition of work previously performed in the demonstration review, the length and scope of a SAR are limited.

5-5.c. Objective. The objective of a SAR is to ensure that the contractual requirement to properly and effectively use the accepted system, revised in accordance with approved changes, is met. It is not the purpose of the review to reassess the contractor's previously accepted system. The use of The Evaluation Guide (Appendix E) during the SAR, therefore, should be limited to providing guidance to the review team members relative to process implementation methodologies; i.e., how to evaluate that the contractor's existing system is in place on the current contract. Identification of any potential non-compliance issues should be brought to the attention of the review director/ or team chief and handled outside the scope of the SAR.

5-5.d. Basis for Application. The decision to conduct a SAR will be based on a determination that the contractor has an approved integrated management system for the phase of effort contained in the applicable contract. Once this determination has been made, the extent of the SAR will be based on the factors listed in 5-5.a above.

5-5.e. Responsibilities. The government component focal point has the authority and responsibility concerning the SAR for selection of the review director; approval of type, scope, and extent of the review; and approval of team recommendations and the resulting report. The review director also approves the assignment of the team chief and SAR team membership.

5-5.f. Relationship to the IBR. The IBR is a separate review and, as such, is conducted under the guidelines of paragraph 7-2 of this guide. The results of the IBR are provided to the appropriate C/SCSC matrix organization for determination relative to the need to conduct a SAR. If the results indicate that the PMB has been properly established and is being used by the contractor in the management of the contract, then a recommendation to waive the SAR is appropriate.

5-5.g. Conduct of the Review. The review will be scheduled based on written government notification to the contractor. The team composition and the duration of the review should be the minimum necessary to complete the task. Usually a three to five day visit to the contractor's facility by a team composed of fewer members than a demonstration review team will suffice. The review is normally led by the office which conducts demonstration reviews and includes participation by the program management office, the cognizant CAO, and Defense Contract Audit Agency (DCAA) representatives. The assigned review director is expected to provide consistency of C/SCSC interpretation and maintain the depth of review at a reasonable level.

5-5.h. Review Procedures. The basic review routine is similar to that of a C/SCSC demonstration review. The direct use of the Integrated Management Systems Evaluation Guide, Appendix E, however, is not appropriate unless used on an exception basis and in abbreviated form. The level of detail resulting from strict application would otherwise be too great and would result in a full re-evaluation of the contractor's integrated management system. The review will consist of five basic activities. These are:

(1) A briefing by the contractor to familiarize the review team with the accepted integrated management system identifying any changes which have occurred since the management system was last subjected to a review.

(2) A review, on a sample basis, of the documentation which establishes and records changes to the contractor's baseline plan for the contract. This will include work authorizations, schedules, budgets, resource plans, and change records (including management reserve and undistributed budget logs). The purpose is to verify that the contractor is maintaining and using a valid, comprehensive integrated baseline plan for the contract.

(3) A review, on a sample basis, of the reporting of cost and schedule performance against the baseline plan, along with appropriate analyses of problems and projection of future costs. Also, performing a trace of the summarization of cost/schedule performance data from the lowest level (normally the cost account level) of formal reporting to the external performance measurement report. The purpose of this activity is to verify the accuracy of reported information.

(4) Interviews with a selected sample of contractor managers to verify that the contractor's previously accepted integrated management system is fully implemented and properly used in the management of the contract.

(5) An exit briefing by the review team covering the team's findings. During this briefing, any open system deficiencies should be discussed along with the agreed upon corrective action plan which establishes responsibility and a time-frame for corrective action.

NOTE: In all of the foregoing activities, the sample actually reviewed should be of sufficient size to assure proper integrated management system implementation. Samples should be carefully selected, however, to focus on the areas of greatest cost and/or schedule activity, and, if possible, risk. If significant problems are found, the sample size and, if necessary, the duration of the review should be extended sufficiently to determine the extent of those problems.

5-6. Common Elements of the Subsequent Application Review and the Extended Subsequent Application Review.

5-6.a. Contractual Requirement. DFARS Clause 252.234-7001 Cost/Schedule Control Systems requires that the contractor be prepared to demonstrate that the contractor's integrated management system meets the criteria (C/SCSC). This will occur within 90 days of contract award or a longer period if the Contracting Officer agrees. The clause also provides that "If the contractor...is utilizing Cost/Schedule Control Systems which have previously been accepted,...the Contracting Officer may waive all or part of the provisions concerning demonstration and review" (DFARS clause, Appendix A).

5-6.b. Selection and Composition of Team. Team members for either the SAR or the ESAR must have the same qualifications as the demonstration review team members (Chapter 4). The members should be experienced and understand the C/SCSC. Knowledge of both the program and the contract is desirable. Formal training, such as that provided by the members schools of the Defense Acquisition University (DAU), is a requirement that normally will not be waived. The review director, team chief, and members will be formally assigned to the team. The team composition will normally be as indicated for demonstration review teams (paragraph 4-3a), although the number of team members should be fewer. It is essential that the team include members from the PMO. The C/SCSC surveillance CPM monitor in the CAO or a qualified representative from the program office may be selected as team chief, or as assistant team chief (paragraph 4-3). Where appropriate, contractor personnel may be invited to BE team members during the review.

5-6.c. Preparation for the Review.

5-6.c(1). Team Preparation. After contract award, but prior to formal review activities with the contractor, the review team chief should ensure that the team members receive a formal briefing on the program, the content and status of the contract, and the findings of the CAO and DCAA FAO surveillance activities. The team members should also review the contractor's integrated management system description, demonstration review report upon which the current acceptance was based, SAR reports, and recent external performance measurement reports.

5-6.c(2). Determine Review Strategy. The review team chief should use the results of the team preparation activities to determine the depth of the review of specific criteria to be evaluated during the review. The results of this assessment should be included in the final report. The team chief should consider:

(a) Significant changes in the contractor's integrated management system description that have been made since the last review;

(b) Deficiencies noted during the implementation review;

(c) Deficiencies noted during the other post-acceptance or surveillance reviews (including those on other contracts); and,

(d) The reliability of cost and schedule data currently being reported by the contractor.

5-6.c(3). Implementation Visit. When the review director and/or team chief consider it to be necessary, an implementation visit should be made to the contractor's plant to discuss plans and actions associated with the review and to ensure that the anticipated scope of the review is understood. Coordination by telephone or correspondence may be used in lieu of an implementation visit.

5-6.c(4). Contractor Preparation. Prior to the start of the review, it is desirable (but not mandatory) that:

(a) The principal contract tasks have been definitized.

(b) The contractor has developed schedules and a complete set of PMB budgets for the definitized work under the contract.

(c) The contractor has completed at least two complete monthly accounting periods of performance against baseline budgets and schedules and has submitted external performance measurement reports for these two periods.

(d) Each subcontractor required to comply with the C/SCSC or to provide an earned value based performance report has submitted at least one report to the prime contractor.

(e) Obvious, significant deficiencies in the contractor's integrated management system operation on the new contract (possibly evident from the quality of the reports, on-site progress reviews, or C/SCSC surveillance) have been pointed out to the contractor and corrected.

5-6.d. Review Results. It is expected that the SAR and the ESAR will result in approval after one review. There can be no approval, however, until all significant deficiencies have been corrected. Reviews will be characterized as either open or closed. Use of terms such as "satisfactory", "marginal", "unsatisfactory" and other arbitrary grades is not productive with regards to review ratings and should not be used. During either a SAR or an ESAR, two levels of deficiencies are possible:

5-6.d(1). Level 1. Criteria non-compliant significant deficiencies which directly affect performance measurement; or deficiencies resulting from failure to implement an approved integrated management system description. Correction of deficiency must occur before the review can be closed.

5-6.d(2). Level 2. Less significant, still need-to-fix deficiencies which may affect performance measurement, but are not material enough to require complete correction before the review can be closed; or minor deficiencies which have little of no impact on performance measurement and are too insignificant to require keeping the review open.

Only Level 1 deficiencies will keep the review in an open status. Level 2 deficiencies allow for closing the review at the time of the out briefing. In either event, however, the contractor must comply with paragraph 5-6.d(3) below.

5-6.d(3). Corrective Actions. The contractor must initiate a corrective action plan to resolve all identified deficiencies in a timely manner. Under normal circumstances, Level 1 deficiencies will require additional review team participation to verify satisfactory corrective action. Where it is necessary to verify that deficiencies have been corrected, the review director should determine whether this can be accomplished by the CAO or whether if it will be necessary to reassemble all or part of the review team for a follow-up review. This determination should be based upon an evaluation of the nature of the corrective action required and the contractor's plan and schedule for corrective action. Follow-on reviews must be approved by the component focal point and will be scheduled by the team chief. The contractor's corrective actions prior to the follow-up review will be monitored by the CPM Monitor and reported to the team chief. Failure to correct Level 1 deficiencies can result in termination of the Advance Agreement and withdrawal of prior acceptance of the contractor's system. Level 2 deficiencies will generally require a CAO or DCAA FAO assessment of satisfactory action (separately or as part of routine surveillance).

5-6.d(4). Deficiencies in the Previously Accepted System. In those instances when the review team determines that the contractor's accepted management system does not meet C/SCSC requirements, the contractor and ACO should be promptly notified. The information provided must detail the specific area of deviation. The procuring activity and the focal point should be notified of major deficiencies and advice should be obtained from all parties, including the lead service involved in acceptance of the system, regarding items of major disagreement, including the lead service involved in acceptance of the system. If, during the review, the team discovers problems which require changes to the contractor's accepted system, the following procedures should be used:

(a) If the contractor agrees with the problems and proposes an acceptable change to the system, the normal ACO approval procedures for system description changes will apply as provided in paragraph 6-10 of this guide.

(b) If the contractor disagrees that there is a problem and does not propose an acceptable change to the system, the procedures outlined in paragraph 1-3 of this Guide will apply. In those cases where problems cannot be resolved by the team, the discrepancy will be elevated to the focal point. In exceptional cases, particularly when more than one government component is involved, the PMJEG should be convened to adjudicate outstanding issues.

CHAPTER 6

Surveillance Process

6-1. General Information. This chapter describes the integrated management system surveillance process and covers the responsibilities of the cognizant Contract Administration. The contractor may choose to participate in this surveillance process. Details concerning the surveillance of each contractor's integrated management system should be developed in a surveillance plan by the CAO and coordinated with the DCAA FAO, the PM. Any procedures used should be consistent with the guidance contained in this chapter and with Defense Logistics Agency Manual (DLAM) 8000.5.

6-2. The Surveillance Process. The CAO has the primary responsibility for surveillance of the contractor's integrated management system. However, close coordination between the prime CAO, major subcontractor CAOs or remote prime location CAOs, the PM, the DCAA FAOs and the contractor is required to ensure surveillance is performed in an effective manner that avoids duplication.

C/SCSC surveillance begins prior to contract award, continues through system demonstration and acceptance (Phase I) and extends throughout the duration of the contract (Phase II). The typical phases of C/SCSC implementation and surveillance can be seen below in figure 6-1.

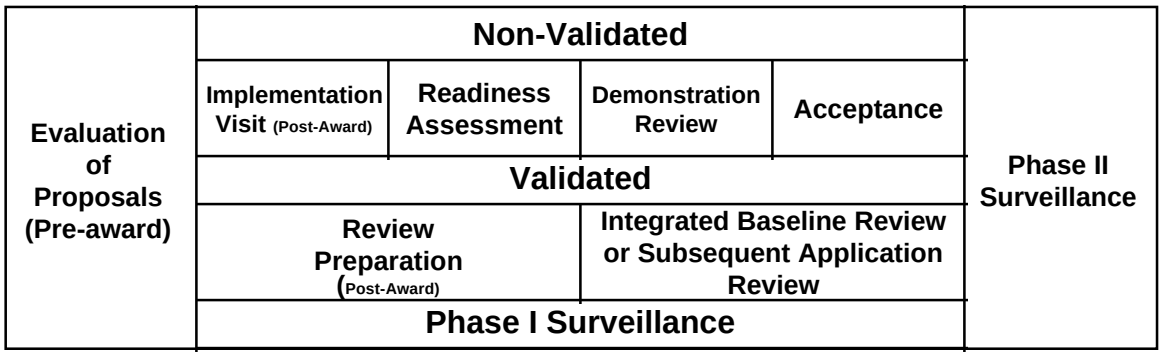


Figure 6-1. Typical Phases of C/SCSC Implementation and Surveillance.

Surveillance must be performed through recurring reviews to ensure the contractor's integrated management system continues to:

a. Provide timely and reliable cost, schedule, and technical performance measurement information.
b. Comply with the C/SCSC.
c. Provide timely indications of actual or potential problems.
d. Maintain baseline integrity.

For the life of the contract the reviews should be based on recurring evaluation of internal management control practices and selective tests of internal and external reported data to ensure the contractor performance data provided to the government:

a. Are summarized directly from the contractor's internal management system.

b. Contain comprehensive variance analysis at the appropriate levels including proposed corrective action in regard to cost, schedule, technical, and other problem areas.

c. Contain information that depicts actual conditions and trends.

6-3. Activities Prior to Contract Award. Prior to contract award, the CAO and DCAA FAO will provide input regarding the contractor's response to the solicitation, the present operation of the contractor's integrated management system, and the contractor's ability to meet the C/SCSC. If the contractor has current or completed contracts with C/SCSC provisions, the CAO will provide an evaluation of the contractor's past performance in implementing and maintaining an effective integrated management system.

6-4. Surveillance Planning. Planning for surveillance should begin as soon as it is anticipated that a contract will be awarded. Active surveillance should begin immediately after contract award to ensure that integrated management system implementation is satisfactory and to obtain correction of obvious system deficiencies. Continuing surveillance should be directed toward all procedures and functions of the contractor's cost and schedule control system. Immediately after contract award, through all phases of system implementation and demonstration, and until system acceptance, the CAO should focus its efforts toward gaining a full understanding of the contractor's integrated management system, to monitoring the implementation of C/SCSC, and to planning and developing the comprehensive surveillance plan for Phase II. In the event that the contractor's integrated management system is already validated, the CPM monitor should be involved in the contractor's preparations for the upcoming Integrated Baseline Review (IBR

6-4.a. Scope of Surveillance. Understanding the scope of surveillance is critical when developing an effective surveillance plan. System surveillance consists of:

(1) Understanding the contractor's integrated management system.

(2) Monitoring the contractor's implementation of the integrated management system on the applicable contract.

(3) Providing guidance to the contractor in preparation for all C/SCSC reviews, participating in the review and monitoring the contractor's corrective action(s) following these reviews to achieve system compliance with the C/SCSC.

(4) Monitoring throughout the life of the contract the continuity, consistency, reliability, and effectiveness of the system in operation. This function includes the following:

(a) Assuring the accepted integrated management system is in fact being used in the management of the contract.

(b) Evaluating, approving or disapproving, changes to the accepted system to assure continuing compliance with the criteria. (c) Conducting periodic system reviews, evaluations, and testing to ensure that the quality of the accepted integrated management system is maintained and utilized.

(d) Informing the contractor and the PM of any uncorrected deficiencies which affect overall acceptability of the contractor's integrated management system, requesting that corrective action be initiated, following the corrective action, and tracking closure.

(e) Providing timely and meaningful reports to the PM and other requesting agencies as defined in the Memorandum of Agreement (MOA).

(5) Assuring contractor prepared reports (internal and external) identify current and potential problems and provide valid estimates of future costs.

(6) Reviewing, evaluating, and analyzing contractor performance measurement reports provided to the government.

(7) Ensuring that surveillance of all contracts within the contractor's facility identifies systemic problems which affect the contract in question.

6-4.b. Surveillance Responsibilities. C/SCSC surveillance requires participation and full cooperation of the PM, CAO, DCAA, and the contractor.

6-4.b(1). Program Management Office (PMO). The responsibilities of the PMO, in connection with C/SCSC surveillance, include:

(a) Negotiating and updating of the Memorandum of Agreement (MOA) with the CAO.

(b) Keeping the CAO informed of actions and matters which could affect C/SCSC surveillance.

(c) Assisting resolution of problems cited in surveillance reports by providing required support to the CPM monitor.

(d) Reviewing, evaluating, and analyzing contractor performance reports.

(e) Apprising the PI and the CPM monitor of the adequacy and usefulness of the surveillance reports, and where necessary, stating required changes to reporting practices.

(f) Obtain assistance from the procuring activity's C/SCSC matrix support activity in resolving post acceptance integrated management system problems.

6-4.b(2). Contract Administration Office (CAO). The CAO is responsible for C/SCSC surveillance in accordance with DFARS 242.302 (41) and DLAM 8000.5. Individuals within the CAO having C/SCSC surveillance responsibilities are:

(a) PI/Subcontract Program Integrator (SPI) appointed by the CAO Commander serves as the CAO focal point on major program contracts (or designated major/critical subcontracts).

(b) The Administrative Contracting Officer (ACO) is designated as the agent of the government responsible for assuring that the contractor complies with the contract. The ACO is a member of the PST.

(c) The CPM monitor is assigned the overall responsibility for developing and accomplishing surveillance of the contractor's integrated management system.

(d) PST members are assigned the responsibility for accomplishing surveillance in their respective functional or organizational area.

6-4.b(3). DCAA Field Audit Office (FAO).

(a) DOD Directive 5105.36 assigns the DCAA FAO responsibilities directly related to C/SCSC surveillance that include: auditing, examining and/or reviewing contractors' and subcontractors' accounts, records, documents, and other evidence, systems of internal control, accounting, costing, and general business practices and procedures, to the extent and in whatever manner is considered necessary to provide advice to the CAO and other government levels having authority and responsibility to take action on (a) the acceptability of incurred costs and estimates of costs to be incurred and (b) the adequacy of contractors' accounting, financial management, and estimating systems and procedures.

(b) DCAA FAO activities are accomplished in coordination with the cognizant CAO through a review of the contractor's total operation.

(c) DCAA FAO has the following responsibilities:

(1) Reviewing the contractor's accounting system for compliance with the C/SCSC and contract provisions including verification that there is consistency with related budgeting and work authorization systems.

(2) Determining the accuracy and reliability of the financial data contained in the contract cost reports prepared from the contractor's systems.

(3) Reporting any significant unresolved deficiencies to the CPM monitor.

(4) Incorporating the appropriate C/SCSC surveillance requirements into routine audit programs and procedures.

(5) Advising the CPM monitor regarding DCAA surveys of contractor systems and other audits which may bear on integrated management system acceptability or surveillance.

6-4.b(4). The Contractor. Through an internal surveillance program or by some other means the contractor should ensure its integrated management system continues to meet the criteria, is implemented correctly on all applicable contracts and is used by management for the life of the contract. The CAO organization should coordinate surveillance efforts with the contractor to avoid duplication. Joint surveillance between the CAO, PM, DCAA FAO, and the contractor is encouraged.

6-5. Training. All government individuals involved with C/SCSC surveillance should receive specialized training dealing with integrated management system concepts, CPM requirements, interpretation of C/SCSC, and surveillance of integrated management system. Joint contractor/CAO/DCAA training is encouraged.

6-6. Advance Agreements. The Advance Agreement (AA) between the government and a contractor specifies that the contractor will use and maintain the validated Cost/Schedule Integrated Management System (IMS) on the current as well as future contracts of a similar type. The AA also documents the government's intent to minimize system reviews. Procedures for developing an AA are provided in DLAM 8000.5.

a. The AA is executed following the successful completion of a Demonstration Review and remains in effect indefinitely. Once executed, the AA should be referenced and incorporated into each contract requiring the application of the Cost/Schedule Control System Criteria. The AA may also be used to fulfill other earned value reporting requirements.

b. The AA is signed by the cognizant Corporate/Division Administrative Contracting Officer (CACO/DACO) or CAO Chief, as appropriate, and a contractor representative at the commensurate level. For example, if the validation is for an IMS used throughout a Corporation's Division, the appropriate contractor representative may be the Division Manager. An example of an AA is provided in Appendix C.

6-7. Memorandum of Agreement (MOA). The MOA is a negotiated agreement that identifies the key individuals, specific responsibilities, priorities, reporting requirements, and working relationships between the PMO and the CAO or between CAOs where multiple prime contractors are involved. The MOA describes the activities necessary to achieve and maintain effective program surveillance. Procedures for developing the C/SCSC portion of the MOA are provided in DLAM 8000.5.

6-8. Reports. The MOA should identify all desired C/SCSC surveillance reports, their frequency, distribution, and general contents. Occasionally, the PM may request special reports, such as problem analysis reports, to address specific situations or problems. Reports submitted by the CPM monitor, through the PI, to the PM will present the findings resulting from the surveillance activities by the CAO and DCAA team. Surveillance reports should provide an independent assessment of the contractor's integrated management system and CPR data integrity. Surveillance reports should not merely duplicate the data contained in the contractor's CPR.

6-8.a. CAO Surveillance Reports. The CPM Monitor should prepare a periodic (normally monthly, but no less than quarterly) report of C/SCSC surveillance activities (including criteria and functional areas reviewed) and results, together with any recommendations for corrections of deficiencies. The report should include an intact copy of appropriate DCAA audit findings that pertain to the contractor's integrated management system. Although a comprehensive evaluation of the contractor's monthly CPR or similar reports may not be required, sufficient evaluation of a sampling of significant data items should be made to assure reports prepared by the contractor are timely, accurate, and reflect actual conditions. Appropriate information from subcontractor CAO surveillance reports should be included. Surveillance reports should be forwarded through the PI to the PM (subcontractor CAO reports will be provided to the prime CAO). Additional distribution, should be specified in the MOA. Copies of surveillance reports should be provided to the contractor.

6-8.b. DCAA Audit Reports. Reports should provide clear statements of the scope of the audit and any deficiencies noted, together with recommendations for their correction. Comments should also be provided regarding the results of discussions with the contractor on deficiencies noted. The report should be forwarded to the local CAO. To ensure that all pertinent information has been considered, the audit findings and recommendations should be discussed with the CPM monitor, and the contractor when appropriate, prior to issuing the report. There may be instances where a formal audit report will not be necessary. Verbal discussion supported by a memorandum may suffice in these instances.

6-9. Performing Surveillance.

6-9.a. Phase I Surveillance. Surveillance of a contractor's integrated management system used on a contract requiring C/SCSC compliance officially commences with contract award. Prior to the acceptance of the integrated management system, surveillance normally falls in the areas indicated in the following subparagraphs.

(1) Familiarization with Contractor's Integrated Management System. During Phase I all surveillance personnel should become familiar with the contractor's integrated management system. Surveillance personnel should monitor the contractor's progress toward full compliance with the C/SCSC. In examining the contractor's system and its outputs, surveillance personnel should focus on identifying any characteristics and features not meeting the C/SCSC and provide recommendations for correction. The CAO should keep the cognizant PM advised of the contractor's progress in upgrading the integrated management system to comply with the C/SCSC.

(2) Verification of Reported Data.

(a) It should be established early in the contract whether the contractor's procedures for accumulating costs and related data and reporting them to the government accurately reflect internal accounting data. Reconciliation of reported information with internal accounting data is the responsibility of the contractor. The reconciliations should be reviewed

periodically (normally quarterly but not less than annually) by the DCAA FAO. The evaluation of the reasonableness of scheduling data and contract status as reported to the government is the responsibility of the CAO.

(b) Verification of data in the contractor's cost and schedule reports, both internal and external, is one of the important aspects of surveillance and requires extensive participation by the DCAA FAO and the CAO. When problem areas or inconsistencies are detected, the cognizant specialists assigned to the CAO will be requested to investigate and report to the CPM monitor. Evaluation of the external reports should be accomplished as these reports are submitted.

(c) In those cases where integrated management system acceptance or post award review is delayed for an extended period of time after contract award, C/SCSC surveillance should shift towards Phase II activities. When dealing with data and reports from an unapproved (or unacceptable) contractor integrated management system, emphasis should be placed on data verification and on assuring consistency between cost and schedule data, information from other contractor integrated management system, and CAO surveillance.

6-9.b. Phase II Surveillance. Phase II surveillance begins immediately following acceptance and should ensure that the contractor's integrated management system continues to meet the C/SCSC and generates valid data. During Phase II, surveillance personnel should concentrate their activities on integrated management system reviews, and evaluation of contract data and reports.

6-9.b(1). Scope and Frequency of Reviews. The overall purpose of an acceptable integrated management system is to provide timely and accurate cost and schedule data to both contractor and government management personnel for decision-making. The scope and frequency of surveillance reviews should be dependent upon individual circumstances. These may include circumstances such as the extent of the contractor's internal system surveillance, contract size, prior surveillance experience, number of major contract changes, type of effort (e.g., development vs. production), and overall status of the contract.

6-9.b(2). General Approach. In evaluating the contractor's integrated management system during Phase II, surveillance personnel must always remain cognizant of the requirements of the C/SCSC. In order to assure that these requirements continue to be met, surveillance personnel may follow a number of surveillance steps:

(a) Evaluate the Integrated Management System. Review the contractor's practices to assure they are in consonance with the accepted system description. As part of the Demonstration Review process, each contractor submits a formal description of the accepted integrated management system supported by detailed operating procedures. Once accepted, the system description and related procedures form the basis for review of the actual operation. These documents should be reviewed and tests performed to determine if the contractor's practices comply with the stated procedures, and if management use of the integrated management system and data is appropriate. In the course of C/SCSC surveillance, the CAO and DCAA should be continually alert to contractor practices, procedures, and systems that do not meet the C/SCSC.

(b) Evaluate System Changes. Proposed changes will be evaluated for compliance with the C/SCSC, impact on the contractor's integrated management system, and effect on contractual provisions. These changes should be promptly and thoroughly evaluated to determine acceptability and to allow for rapid implementation. (See paragraph 6-10)

(1) Changes to an integrated management system may affect many areas. For example, format changes, modification of methods and standards, computer program changes

or changes in the budget process, could affect the reliability of data inputs and outputs. In addition, changes in BCWP calculation methods, variance analysis thresholds, and EAC updates, could affect the results of contractor variance analysis. These types of changes could directly impact the data upon which management decisions are made.

(2) In addition, surveillance personnel should always be concerned that the system description accurately describes the accepted integrated management system and look for unauthorized contractor departures from the accepted system. Deviations should be brought to the immediate attention of the contractor.

(c) Verify Data Validity and System Discipline. On a recurring basis, the surveillance personnel should perform evaluations as to the validity and traceability of the contractor's cost and schedule data. By performing certain selective tests of the contractor's cost and schedule data flow and by comparing the results with other appropriate internal and external data reports, the surveillance personnel are able to ascertain the accuracy of the contractor's data base, and the discipline of both the contractor's management personnel and the integrated management system. For example, one test might involve comparing vendor and subcontractor invoices to ACWP reported on internal performance measurement reports and verifying that it is reconcilable to the ACWP reported in the external reports. In addition, by tracing the cost and schedule data flow, the CPM monitor is able to determine that all applicable subsystems related to cost and schedule control are integrated and use the same data source.

(d) Verify Reconciliations. Contractor reconciliations of appropriate financial data should be verified periodically to assure that data presented in various external reports and documents are valid, reconcilable, and traceable to other external financial reports and to cost and schedule data bases in the contractor’s integrated management system. Differences in the data must be explained consistently and logically. The mechanics of the contractor's procedure for reconciling data should be reviewed in the early stages of contract surveillance. After attaining assurance that reliable procedures are consistently followed, such verifications should be required less frequently.

(1) Since the cost account is the level at which variance analysis is conducted and the level at which performance measurement is required by the C/SCSC, the reporting and accounting summarization process must begin at this level and extend vertically through the WBS and horizontally through the functional organizations or product teams. Surveillance in this area should focus on ensuring an accurate summarization of information from the cost account level to the total contract level.

(2) The depth, intensity, and frequency of reconciliations will be influenced by such factors as the relative importance of the data, past reliability of contractor's data, the degree of stability or change existing in the contractor's organization, the number of subsystems and operations, or the number of contracts. Decisions on frequency and depth of reconciliations and the actual techniques to be employed will be made at each location.

6-9.c. C/SCSC Compliance After Acceptance. After demonstration and acceptance, the contractor is contractually obligated to maintain the integrated management system in accordance with the accepted system description. This is not intended to inhibit continuing innovations and improvement of the contractor's system.

6-10. Contractor Proposed Changes. Contractors are encouraged to make improvements to their integrated management systems. Formal request to change their accepted system will be submitted to the ACO for approval. Such requests must be promptly evaluated for

compliance with the C/SCSC. The ACO will notify the contractor within 60 days whether a proposed change is acceptable. Implementation of these changes may be made by the contractor when submitted. However, if subsequent evaluation by the government component determines that the change is non-compliant with the criteria, the contractor will make necessary corrections at no change in contract price.

6-11. Surveillance of Subcontractors and Other Prime Contractor Locations. The prime contractor and the procuring activity will determine which subcontracts may be selected for C/SCSC application. This is normally based upon dollar value and/or criticality of the subcontract. Subcontracts selected should be identified in the prime contract. Substantial work performed at other locations or divisions of the prime contractor may require surveillance by another CAO. Where appropriate, the request for support administration should be made by the CAO having cognizance of the contract. The procedures for support should be essentially the same as for subcontractor surveillance described below.

6-11.a. Responsibility. When a subcontractor is required to comply with the C/SCSC, the prime contractor will be responsible for C/SCSC surveillance of the subcontractor. The prime CAO function normally is limited to evaluating the effectiveness of the prime contractor's management of the subcontract. However, there may be occasions when the PM or a prime contractor will request, through the ACO, that the government perform limited or complete C/SCSC surveillance.

6-11.b. Conditions. Such support administration is not to be construed as a discharge of the prime contractor's contractual obligations and responsibilities in subcontract management. Such assistance should generally be provided only when:

(1) The prime contractor is unable to accomplish the required surveillance because it would jeopardize the subcontractor's competitive position or proprietary data is involved,

(2) There is a business relationship between the prime contractor and subcontractor not conducive to independence and objectivity, as in the case of a parent-subsidiary or when prime and subcontracting roles of the companies are frequently reversed; or,

(3) The subcontractor is sole source and the subcontract costs represent a substantial part of the prime contractor costs.

APPENDIX A

DOD FEDERAL ACQUISITION REGULATIONS SUPPLEMENT

SOLICITATION PROVISION

252.234-7000 Notice of Cost/Schedule Control Systems. As prescribed by 234.005-70, use the following provision:

NOTICE OF COST/SCHEDULE CONTROL SYSTEMS (DEC 1991)

(a) The Offeror shall submit a comprehensive plan for compliance with the cost/schedule control systems criteria of DoDI 5000.2, Defense Acquisition Management Policies and Procedures. The plan shall-

(1) Describe the integrated management system the Offeror intends to use in the performance of the contract.

(2) Distinguish between the Offeror's existing management systems and modifications proposed to meet the criteria.

(3) Describe the management systems and their application in all major functional cost areas in terms of:

(I) The work breakdown structure,
(ii) Planning,
(iii) Budgeting,
(iv) Scheduling,
(v) Work authorization,
(vi Cost accumulation,
(vii) Measurement and reporting of cost and schedule performance,
(vii) Variance analysis, and
(ix) Baseline control.

(4) Describe compliance with each of the criteria. (Preferably, cross-reference appropriate elements in the description of systems with the items in the evaluation guide for integrated management systems contained in AFMCP- 173-5, AMC-P 715-5, NAVSO-P3627, NSA/CSSH-N255-01, DLAH 8400.2, DCAA-P7641.47,Guide to Cost/Schedule Management (Appendix E).

(5) Identify the major subcontractors, or major subcontracted effort if major subcontractors have not been selected, planned for application of the criteria;

(6) Describe the proposed procedure for administration of the criteria as applied to subcontractors.

(b) If the Offeror is using an integrated management system which have been accepted by the Government, or is operating an integrated management system under a current Advance Agreement, the Offeror may submit either instead of the comprehensive plan.

(c) The Offeror shall provide information and assistance as requested by the Contracting Officer for evaluation of compliance with the cited criteria.

(d) The Government will evaluate the Offeror's plan for implementation of an integrated management system before contract award.

(e) The prime contractor and the Government shall agree to subcontractors selected for application of the C/SCS criteria. The Contractor will contractually require the selected subcontractors to comply with the criteria. If either the prime or subcontractor requests, the Government, at its option, may conduct demonstrations and reviews of these selected subcontractor's management systems.

(End of provision)

CONTRACT CLAUSE

252.234-7001 Cost/Schedule Control Systems. As prescribed at 234.005-70 use the following clause:

COST/SCHEDULE CONTROL SYSTEMS (Dec. 1991)

(a) The Contractor shall establish, maintain and use in the performance of this contract cost/schedule control systems (C/SCS) meeting the criteria of DoDI 5000.2, Defense Acquisition Management Policies and Procedures.

(b) Within 90 calendar days of contract award, or a longer period if the Contracting Officer agrees, the Contractor shall-

(1) Furnish the Contracting Officer a description of the integrated management system applicable to this contract. The description shall-

(i) Be in the form and detail as needed to describe processes and procedures that meet the intent of the criteria outlined in DoDI 5000.2, Part 11; or,

(ii) Be in the form and detail required by the Contracting Officer.

(2) Be prepared to demonstrate the operation of the Contractor's integrated management system to the Government for compliance with the criteria of DoDI 5000.2.

(c) The Contracting Officer shall reference the description of the accepted integrated management system in the contract. The Contractor shall be maintain and use the accepted integrated management system in the performance of the contract.

(d) The Contractor shall submit proposed changes to the accepted integrated management system to the Contracting Officer for review and approval. The Contracting Officer shall advise the Contractor of the acceptability of such changes within sixty (60) days after receipt.

(e) When systems existing at time of contract award do not comply with the criteria, the Contractor shall make adjustments necessary to assure compliance at no change in contract price or fee.

(f) The Contractor agrees to provide access to all pertinent records and data requested by the Contracting Officer or duly authorized representative. Access is for the purpose of reviewing the demonstration in paragraph (b) of this clause and also to permit Government surveillance to ensure continuing application of the accepted systems to this contract.

(g) The Contractor shall correct deviations from accepted systems discovered during contract performance, as directed by the Contracting Officer.

(h) The Contractor shall require that each selected subcontractor, as agreed to by the Contracting Officer, shall meet the C/SCS criteria as set forth in the Guide. All such subcontracts shall have provisions for demonstration, review, acceptance and surveillance of systems, to be conducted by the Government, at its option, when requested by the Contractor or subcontractor.

(I) If the Contractor or subcontractor is utilizing integrated management systems which have been previously accepted, or is operating such systems under a current Advance Agreement, the Contracting Officer may waive all or part of the provisions concerning demonstration and review.

(End of Clause)

FAA Clause for Cost Performance Report (CPR)

A. The Contractor shall establish, maintain, and use in the performance of this contract a system that plans and controls costs and schedules, measures performance (value of completed tasks), and is the data base for reporting reliable contract cost and schedule status to the Contracting Officer or his designated representative(s). The Government shall review, evaluate, and approve the system for use by the Contractor in the performance of this contract.

B. To facilitate the Government's understanding of how the Contractor's system generates cost and schedule information to meet the criteria for CPR reporting and to allow tracking of the system, the Contractor shall provide access to all pertinent records and data requested by the Contracting Officer or his designated representative(s) during performance of this contract. The Contractor agrees that the Contracting Officer or his designated representative(s) may periodically visit the Contractor's facility to gain a further understanding of the methods used to develop CPR cost and schedule information. The initial visit shall take place within 15 calendar days of the award of the contract. During such initial visit, the Contractor shall: (1) provide "talk through- walk through:" of these methods in actual operation for review and evaluation by the Government.

C. The Contractor shall require that each selected subcontractor, as set forth in the schedule of this contract, shall establish , maintain, and use a system for reporting reliable cost and schedule status to the Contractor. All subcontractor required cost and schedule information shall be incorporated in the Contractor’s CPR's.

D. If the Contractor uses a Cost/Schedule Control System for this contract that has been accepted by a DoD component as meeting the criteria requirements of DoD Instruction 5000.2, that system may be used to satisfy the requirements of paragraph (a) of this clause.

E. The Contractor shall use the Work Breakdown Structure (WBS) and level reporting set forth in this contract as the primary framework for contract planning, budgeting, and reporting the status of costs and schedules to the Government.

F. When a contract change is issued under the "Changes" clause of the contract, the Contractor's cost proposal.

APPENDIX B

C/SCSC REVIEW REPORTS

1. Report Preparation:

A. Preparation of review reports is a review team chief responsibility. Requirements and deadlines for preparing drafts of various sections of the report may be delegated to individual team members. A draft of the report should be made available for review by team members prior to departing the contractor's facility. Every effort should be made to minimize the size of review reports. This is especially true relative to the use of exhibits.

B. Some general guidelines apply to the preparation of all reports:

(1) Elements elected for trace should be stated in the narrative. Selected trace elements should consistently be used in reporting on the various categories of the criteria.

(2) Exhibits should be placed at the end of the report and numbered consecutively without regard to the category of criteria to which they relate. The exhibit numbers should be placed in the lower outside corner.

(3) Exhibits must be legible and complete. Ensure that the quality of the exhibits are maintained after reproduction. Do not reduce exhibits merely to avoid foldouts.

(4) Exhibits must be marked to highlight the specific element(s) of information to make it clear exactly what the exhibit illustrates. This may also be accomplished by superimposing an explanatory note to the trace that supports the narrative.

(5) Exhibits must portray "live data," except when used to reproduce a part of directives, procedures, or forms.

(6) Exhibits should be from the same period and, where feasible, from the same leg of the WBS. The Government team shall not redraw the CWBS or any of the exhibits to eliminate intermediate summarization (for example, geographical, functional, etc.).

(7) Exhibits supporting the Managerial Analysis section of the Findings should be provided for both direct and indirect cost variances. Indirect cost variances must be analyzed from the standpoint of the manager responsible for their control.

(8) Include only the pertinent pages (appropriate excerpts) of multi-page exhibits (such as WBS Dictionary, CPRs, Schedules, etc.).

(9) For each criterion (demo and ESAR only):

(a) Ensure that the system description reference block is complete and accurate.

(b) Describe briefly what the team did for verification, using the exhibit section when applicable.

(c) Make a statement concerning the compliance of the system with the criterion.

(d) When deficiencies are noted, describe the problem, state why it is a problem and record the contractor's corrective action.

(10) Criteria discussions may be combined or cross-referenced rather than repeating narrative discussions found elsewhere.

2. Format and content.

A. Demonstration Review or ESAR Report. This report will be the basis for acceptance of the contractor's management control system by the government components.

(1) Table of Contents.

(2) Index to Exhibits.

(3) Introduction. Identify the contract purpose, type, duration, amounts (total, ceiling price, target costs, etc.), the program being supported, and the cognizant government component. Also, identify the specific contract requirement for the C/SCSC and indicate other work in the contractor's facility that has the C/SCSC requirement.

(4) Purpose. Identify the purpose of the review. This may be a demonstration review (or re-demonstration review) of the performance management system operated in a specific contract effort, or an ESAR that extends the applicability of the previously accepted system.

(5) Scope. Identify the specific contractual entity that is the subject of this review; for example, division, company, plant, and the functional organizations, such as engineering, manufacturing, quality assurance, or individual process teams. Discuss whether the review is related to development, production, or construction contracts and if the system is restricted to the specific contract or is used throughout the contractor's organization. Indicate whether this contractor applies earned value management to commercial as well as government contracts..

(6) Review Process. Describe the extent of the review, such as whether the entire system was demonstrated, or, in the case of an ESAR, parts applicable to the extension of the system. Areas not investigated should be discussed and reasons provided; for example, the method of implementing contract changes could not be reviewed because no contract changes had been executed. Identify the methodology used in conducting the review, indicating such items as range of interviews, depth of review, documents examined, and traces conducted. Team members and their associated responsibilities should be identified in this section. Include a general statement relative to the outcome of the review.

(7) Findings. Organize this section in accordance with Appendix E of this guide. Address each of the areas reviewed in narrative form explaining C/SCSC compliance and implementation of the contractor's system.

(a) For each criterion, reference the contractor's system description paragraph numbers. The evaluation comments must explain how the system satisfies or does not satisfy the criterion in sufficient depth to clearly establish compliance or noncompliance. The narrative should be able to stand alone. It is enough to say 'Demonstrated' or 'Not Demonstrated' or 'Yes, Not demonstrated,' in the Evaluation Comments block followed by appropriate remarks. 'Not Applicable' will only be used when the system does not require compliance and never will have to comply (for example, to provide higher level CWBS budgets above the C/A level).

(b) The narrative may be supported by the 12 Formats and other exhibits (as necessary) to illustrate and prove criteria compliance, but exhibits should not be used as a matter of course. When an exhibit is necessary, however, the narrative must explain the exhibit so that it would not be necessary for the reviewer to turn to the exhibit to understand why it is there and what it portrays. The narrative in the Findings section should state explicitly what the reader should look for on each exhibit and how the exhibit proves that the requirement is met.

(c) A re-demonstration review must address any deficiencies existing at the conclusion of the demonstration review. Only those events applicable to the re-demonstration will be addressed and each will be addressed individually. Do not restate the previous deficiency unless it is necessary for understanding the new finding.

(d) An ESAR report must address any differences between the previously accepted system and the system being reviewed. These differences are addressed at the criteria level.

(8) Conclusions. This section includes the overall evaluation of the system's compliance. If the contractor's system does not comply with the criteria, this section will identify the areas of non-compliance. Areas "not demonstrated" are also be noted.

(a) Demonstration Review: This portion of the report must contain a conclusion stating whether or not the contractor's system meets the intent of the C/SCSC. The acceptance statement should specifically identify the system demonstrated, and whether it is used for development, production or construction.

(b) ESAR: This portion of the report must contain a conclusion stating whether or not the contractor's system meets the intent of the C/SCSC and the acceptability of extending the contractor's previous validation to the new system. The acceptance statement should specifically identify the system demonstrated, and whether it is used for development, production or construction.

(9) Recommendations. This section should recommend necessary corrective action to achieve acceptability or compliance. The recommendations should not delineate specific corrective methods to correct deficiencies but should identify areas requiring improvement. Suggested improvements to enhance the system can be noted here but should be identified separately from corrective action necessary to comply with the criteria. If applicable, include a recommendation for a re-demonstration review, or, in the case of an ESAR, further review.

(10) Exhibits.

(a) Demonstration Review. Include, as a minimum, those exhibits, formats and procedures called for in the Evaluation Guide, Appendix E. Exhibit 1 will be a reproduced Evaluation Guide marked to show the compliance or noncompliance of the management system by annotating the Evaluation Comments section under each criterion.

(b) ESAR. For those criteria where compliance is being demonstrated by the contractor, include the referenced Formats. Individual exhibits will be included only as necessary to support compliance or non-compliance issues. Exhibit 1 will be a reproduced Evaluation Guide clearly marked to show which criteria were reviewed for compliance and implementation versus implementation only.

B. SAR Report. The report will be prepared according to the following outline:

(1) Introduction:

(a) Summarize type and scope of contract.

(b) Give basis of acceptance of contractor's system as C/SCSC compliant.

(c) Identify any other in-plant contracts requiring C/SCSC compliance.

(d) Identify team members and their organizations.

(e) State, in general terms, the conclusions and recommendations from the review.

(2) Scope of Review. Identify contractor organizations and data samples reviewed.

(3) Findings.

(a) Organize findings in paragraph form. Ensure that the fourteen areas listed in (b) below are covered. Each area should be addressed relative to:

(1) a brief description of the process used to review the area;

(2) unique applications of the integrated management system in this area;

(3) concerns identified during the review;

(4) the status of any concerns at the conclusion of the formal review; and,

(5) follow-up activities to resolve the concern.

(b) Each criterion need not be addressed. As a minimum, the findings should address the following areas. Each area, however, may be reported "by exception"; i.e.

comments are required only when discrepancies are outstanding at the conclusion of the initial review. The areas to address are:

(1) The Organizing Process: in this section discuss the WBS subdivision and integration with the contractor's organizational structure and contractor manager knowledge and use of the system.

(2) The Scheduling Process: schedule subdivision and integration with cost account/work package schedules.

(3) The Work and Budget Authorization Process: work package identification; baseline establishment and maintenance; identification of management reserve and undistributed budget; and, establishment of internal budgets that add up to the CBB.

(4) The Accounting Process: the continuing correct transfer of information from the accounting system to the performance measurement system.

(5) The Indirect Management Process: how the contractor is managing overhead budgets and costs and their relationship to contract performance.

(6) The Managerial Analysis Process: how BCWP is determined; identification of internal variance analysis requirements and the quality of the analysis; and, estimate at completion determination and reasonableness

(7) The Material Management Process: how material is planned, progress measured and analysis and estimates performed.

(8) The Subcontract Management Process: how subcontractor data is evaluated; how the internal performance measurement information is updated; and, how the subcontractor's estimate is reviewed and evaluated.

(4) Conclusions and Recommendations.

(a) The contractor has (or has not) properly implemented the system.

(b) Deficiencies found and corrective action taken.

(c) Remaining deficiencies with assigned responsibility and corrective action schedule.

(d) Recommendation for a second review, if necessary.

(e) Recommended items for CAO surveillance.

C. IBR Report. Reporting the results of the IBR takes the form of an informal letter, or memo for record, that summarizes the findings that require corrective action and assigning the surveillance of the corrective action to the CAO. All required surveillance activities will be addressed, C/SCSC, as well as technical issues. When applicable, the letter should address any corrective action plan that has been agreed upon between the contractor and the procuring activity. Issues that could impact the decision to conduct a formal C/SCSC review should also be identified and a copy provided to the component C/SCSC focal point. The Contracting Officer formally notifies the contractor of the results, including required corrective actions.

3. Report procedures.

A. Demonstration Review and ESAR Reports. The demonstration review or ESAR report will be the basis for acceptance of the contractor's management control system by the government components. A formal report will be prepared by the team chief and submitted to the review director within 30 working days after completion and approval of all corrective actions.

(1) All reports will be subject to review by the lead component focal point for coordination with the C/SCSC component focal point responsible for conducting the

demonstration review. C/SCSC review reports will be provided by the lead service to the other component focal points for coordination before release.

(2) The appropriate contracting office will inform the contractor regarding acceptance or non-acceptance of the system and provide the contractor with copies of the report when released by the review director.

(3) Any significant disagreements on the final wording or content of the report will be referred through appropriate channels for resolution.

C. SAR Report. The SAR report will be prepared by the team chief and forwarded to the component focal point within 20 workdays after close of the review. Upon review and approval of the report and its recommendations, the contractor will be notified through the procuring activity and the CAO, with a copy furnished to the component focal point. When applicable, the team chief will coordinate plans for a follow-up review with the review director, CAO and the contractor.

D. IBR Reporting. A letter reporting the results of the review will be prepared by the Program Manager within 10 working days of the review and sent to the cognizant ACO and component C/SCSC focal point.

4. Report Distribution: The focal point will control the issuance and distribution of the various review reports. When applicable, the cover page of each report will contain a statement indicating that the report contains contractor proprietary data, and that distribution of copies will be limited. Contents will not be disseminated outside the government, in whole or in part, without the express permission of the cognizant component focal point and the contractor.

APPENDIX C

ADVANCE AGREEMENT
(formerly Memorandum of Understanding)

1. The Advance Agreement (AA) between the government and a contractor specifies that the contractor will use and maintain the validated Cost/Schedule Integrated Management System (IMS) on the current as well as future contracts of a similar type. The AA should be incorporated into the contract and provides a legal and binding agreement concerning the application of the validated IMS. The AA documents the government's intent to minimize system reviews. The AA also documents a contractor's corporate commitment to continue to use and maintain the IMS for current and future government contracts.

2. The AA is executed following the successful completion of a Demonstration Review OR ESAR and remains in effect indefinitely. Once executed, the AA should be referenced and incorporated into each contract requiring the application of the Cost/Schedule Control System Criteria. The AA may also be used to fulfill other earned value reporting requirements.

3. The AA is signed by the cognizant Administrative Contracting Officer (ACO) or CAO Commander, as appropriate, and a contractor representative at the commensurate level . For example, if the validation is for an IMS used throughout a Corporation's Division, the appropriate contractor representative may be the Division Manager. Any amendments or changes to the AA, once executed, must be made through the cognizant ACO.

4. The source and authority for the AA on DoD contracts is the DFAR Supplement 252.234-7001, Cost/Schedule Control Systems Criteria; DoD Instruction 5000.2, Part 11, Section B - Contract Performance Management. Other government components will cite similar authority for the AA in the contract. A sample AA and a Joint Surveillance Program outline are provided below as guides in their preparation. It contains the minimum requirements for an AA. Other areas that should be considered for discussion in the AA include:

(a) applicable contractor and government policy and directive references;
(b) reference to both contractor and government surveillance plans and guidance;
(c) the process to follow for updating approved system descriptions;
(d) internal coordination requirements for conducting continuing surveillance; and
(e) documentation and reporting requirements.

Neither of the below documents are intended to be applied exactly as shown but rather modified to fit the contractor, program and CAO/DCAA requirements and capabilites.

Advance Agreement
between
(Cognizant CAO's name)
and
(Contractor's name, division, location)

Implementation and Maintenance
of
Cost/Schedule Integrated Management Systems

This document establishes an Advance Agreement between the *[name of the cognizant CAO]* and *[contractor name, division, location]* regarding the implementation and maintenance of the [*name of the contractor's IMS]* conforms to the Cost/Schedule Control Systems Criteria (C/SCSC) established by the Department of Defense Instruction 5000.2, Part 11, Section B, Contract Performance Measurement.

The contractor has demonstrated certain management systems and subsystems as identified in *[name of the contractor's IMS description dated (date)]*, and

The *[Government component]*, by letter dated *[date*, based on *[Demonstration or Extended Subsequent Application Review (ESAR), as appropriate]* report dated *[date]*, did validate such systems and subsystems, then

THE *NAME OF THE COPGNIZANT CAO]* AND *[CONTRACTOR NAME, DIVISION, LOCATION]* AGREE THAT:

(1) Such systems and subsystems which have been validated as indicated above, together with approved changes thereto, shall apply to future *[specify type of contract; for example, RDT&E, production or both]* contracts entered into between the contractor and the Government which require compliance with the C/SCSC.

(2) As a result of *[contractor name, division, location]* agrees to maintain the [*name of the contractor's IMS]* through an internal surveillance program or by some other means *[Joint surveillance between the CAO, PM, DCAA FAO, and the contractor is encouraged.]*

(3) The *[contractor name, division, location]* agrees to provide access to pertinent records and data in order to permit adequate surveillance of the [*name of the contractor's IMS]* and related subsystems.

This Advance Agreement will remain in force indefinitely, subject to modification by mutual agreement or termination by either party.

_____
CAO Commander or
Corporate/Division Administrative Contracting Officer)CACO/DACO)

_____
Contractor Vice President and General Manager
(or equivalent)

JOINT SURVEILLANCE PROGRAM AS IMPLEMENTED AT *[Contractor's Name, Division, Location*

I. CHARTER AND OBJECTIVES:

The Joint CAO/DCAA and *[contractor name, division, location]* Surveillance Team is established to:

A. Ensure that *[contractor name, division, location]*'s implementation of [*name of the contractor's IMS]* continues to:

1. Provide both Government and contractor management with assurance that programs are following sound business management practices.

2. Comply with the accepted System Description by:

a. Training designated program personnel in the use of the [*name of the contractor's IMS]*

b. Accomplishing early, comprehensive planning to provide a quality baseline ready for examination in the Integrated Baseline Review (IBR) process.

c. Integrating cost, schedule and technical planning into a single, well controlled performance measurement baseline.

d. Establishing clear lines of authority and responsibility for accomplishment of work elements.

e. Using problem identification information early, and continuously, to formulate corrective action/work around plans to mitigate significant variances from the baseline plan.

f. Providing valid and timely management information.

B. Ensure that *[contractor name, division, location]*'s external cost and schedule reports contain:

1. Information that depicts actual conditions.

2. Information derived from the same database as that used by *[contractor name, division, location]* management of the business.

3. Variance analyses that include proposed corrective action in regard to cost, schedule, technical, or other problem areas.

C. Maintain a well understood, effectively used, and disciplined management process through teamwork between *[contractor name, division, location]* and the Government which will lead to eliminating the need for formal Government comprehensive system reviews upon award of new contracts.

D. Effectively communicate surveillance findings/results to appropriate *[contractor name, division, location]* and Government individuals to assure early correction of system problems.

E. Gather metrics to determine the effectiveness of the performance measurement system and to distinguish between systemic and non-systemic problems.

F. Encourage continuous improvement and innovation.

G. Ensure that performance measurement data remains timely and accurate.

H. Reduce the cost of surveillance by combining resources to achieve these common goals.

II. JOINT SURVEILLANCE PROCESS:

A. Earned Value Business Management System. Surveillance emphasis of the *[Contractor's name, division, location]'s* accepted system occurs in five principal areas:

1. Maintenance of the [*name of the contractor's IMS].*

2. Thorough project planning leading to an effective, well-understood Performance Measurement Baseline (PMB).

3. Accurate assessment of earned value performance to plan.

4. Early identification of performance problems.

5. Reliable and Timely updates to the Estimate at Completion (EAC).

B. Surveillance <u>is not</u> an audit function. It is a cooperative effort between the surveillance parties and the Cost Account Managers (CAMs) toward the shared goal of timely identification and correction of problems. This relationship helps focus on the need to conduct training and develop tools to enhance the CAM's capability.

C. Joint Surveillance Team. The team will consist of individuals from *[Contractor's name, division, location]*, CAO, and DCAA who are knowledgeable of C/SCSC, Thoroughly familiar with [*name of the contractor's IMS]*, and experienced in reviewing all aspects of *[Contractor's name, division, location]'s* performance measurement system.

Note: *[Contractor's name, division, location]* team members will be selected for an organization reporting chain separate from the specific program being reviewed.

D. Communications. *[Contractor's name, division, location]*, CAO and DCAA management recognize the Joint Surveillance Team as an integral part of the IMS system and communicate openly with this team. Joint surveillance results will be a topic of discussion at periodic management meetings. *[Contractor's name, division, location]* provides access to data generated from the performance measurement system and keeps the Joint Surveillance Team

advised, via the CAO CPM Monitor, of planned or actual changes that would impact the [*name of the contractor's IMS]*, such as software tools, key personnel changes, organization structures. Changes or organization are normally discussed at the periodic program reviews. Changes of underlying systems will be specifically identified when planned.

E. Surveillance Schedule. The Joint Surveillance Team will establish a surveillance schedule with periodic review cycles of one to three months depending on the scope of the review. The goal is to complete a review of each major process (Organizing, Scheduling, etc.) on an annual basis. Processes that are reviewed as part of other reviews (IBRs, SARs, etc.) may satisfy this requirement. In addition, the surveillance team will review major planning/replanning, temporarily institutes intensive management activities, or major EAC updates as they occur. The scope of the Joint Surveillance Team's efforts will be consistent with the management system requirement as stated in the applicable contracts. Surveillance may be either program specific or span one or more programs.

F. Reviews: Reviews are conducted by team members (consisting of contractor/Government mix) with minimal disruption to the program. The focus of these reviews is on the baseline integrity, accurate schedule status and earned value assessment, use of system for early identification of problems, and timely EAC updates. Performance data for each program is reviewed prior to interviews of contractor program personnel. The Continuous Improvement Opportunities (CIOs) of Corrective Action Requests (CARs) written as a result of the review will note the type of visit and areas reviewed. CIOs and CARs are issued to the *[Contractor's name, division, location* IMS Focal Point and applicable Program Manager (PM). Copies of the report are also provided to the Administrative Contracting Officer and the CAO PI for distribution to the Government Program Office via the CAO program surveillance reports.

SUBJECT: Advance Agreement and Joint Surveillance between *[CAO Name]* and *[Contractor Name, Division, Location]*

TO: Chairman, Performance Measurement Joint Executive Group (PMJEG)

1. The Joint Service Acceptance letter dated *[date],* acknowledges that our *[name of contractor's integrated management system]* complies with the C/SCSC.

2. As a result, we have established an Advance Agreement and Joint Surveillance Program to ensure implementation and maintenance of the *[name of contractor's integrated management system].*

3. The Advance Agreement and Joint Surveillance Program are provided for your information.

Attachments:
1. Advance Agreement
2. Joint Surveillance Program

Appendix D

Process Descriptions.

This appendix provides generic descriptions of the eight major processes that are normally evaluated at each contractor's facility during either a Demonstration Review (Demo) or an Extended Subsequent Application Review (ESAR) (Chapter 5.) These descriptions are not intended to be specific insofar as every contractor proceeds exactly as described below. Contractors must be allowed the latitude within the criteria to implement management processes that reflect their internal philosophy rather than an arbitrary government interpretation of criteria requirements. The processes described here are intended to provide information to the review teams in the review of these processes and should not be strictly applied.

For the most part, there is a one-for-one relationship between the discussion here and Chapter 3. However, the Organizing description here covers the "Managerial Analysis" and the Work/Budget Authorization description includes the "Change Incorporation" process. Finally, the description of the manufacturing process is included here separately to clarify the uniqueness of earned value management in the factory.

A. Organizing Process.

A.1. Introduction. The organizing process extends beyond the simple need to plan and identify resources for a given project. It is a process that begins at the highest levels within a company and breaks down work into manageable units that are assigned to responsible individuals. Those individuals with project tasks perform their duties and report the status of their efforts to the decision makers who originally structured the organizational strategy. The organizing process cuts across all areas of the criteria. A simple paradigm or model, structured around the criteria, captures this as follows:

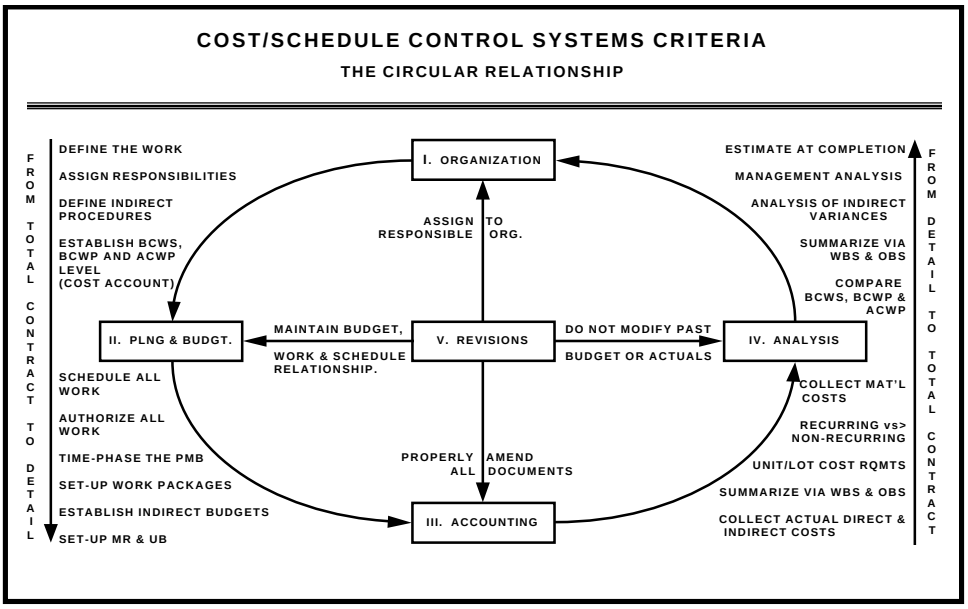


Figure 3-1

The C/SCS criteria address the basic tenets of good management and the decision-making process. As tasks are identified from the Statement of Work and organizations are established

to perform and manage these efforts (Box 1), responsible organizations and managers enter into discussions on budget, scope, and schedule. Once there is agreement between the project office and the responsible managers, the work is planned and budgeted at a detailed level (Box 2), and a baseline is established against which accomplishment will be measured. The contractor's cost collection system accumulates allowable costs, both direct and indirect, (Box 3), and finally, variances from the plan (cost and schedule) are determined and analyzed and managerial feedback is provided to decision-makers at all levels within the organization (Box 4). When changes in the scope, schedule or budget are incurred, all areas of the paradigm are affected (Box 5), and the process of organizational structuring is repeated.

A.2. Expanding the program organization. Once the contract is awarded, a core contractor program team is identified. This team may be very small in number, but tends to be knowledgeable about the specifics of the recently awarded contract. Some members may have been part of the team that worked on the winning proposal. They are charged with the development of a contractor team that can carry out the specific requirements outlined in the SOW and CWBS and can provide the product according to the negotiated contractual objectives.

Early on, the core team will gather the necessary resources (both personnel and financial) to get the job done. This is accomplished through the physical commitment of personnel from both internal and external sources, i.e., in-house labor or subcontracts. Depending on the company's operating philosophy, several options are available for organizing a particular project. Some projects may choose to implement a mix of these options to maximize resource availability. These organizational options are generally characterized as project, functional, matrix, or work teams (also known as integrated product teams (IPTs)) The basic definitions of these structures are as follows:

a. A project organization consists of personnel who are permanently assigned to the project. Each hour of time during the work day is charged to that project. This is an expensive approach requiring high levels of staffing and, periodically resulting in the inefficient use of resources. If there is a down-turn in workload, the project personnel continue to charge their hours to the project code until they are reassigned. On the other hand, this full-time commitment to the project facilitates completion of contract objectives.

b. Another approach to organizing is according to functional alignment. Functional organizations are aligned by major operating organizations within the company. For example, a company that sends the work through departments, e.g., manufacturing, engineering, test, or quality, would be aligned functionally. Each function has a specific job or responsibility to contribute to product development. The functional organization may not be the best for parallel processing of work across functions.

c. The matrix organization is a combination of both project and functional. Personnel from functional organizations are assigned to a project and actually have two managers. As part of their day-to-day project activities, members report to the project manager, but they are also responsible to their functional managers as company assets. This approach maximizes the use of limited personnel resources. If there is a slow-down in work on a contract, the functional manager can reassign resources to where they are most needed. However, matrix organizations share unique risks. That personnel may have two managers to which they are responsible may generate conflicting priorities. The matrix-managed organization also requires a high level of commitment to project goals by senior management and the functional managers.

d. Work teams are clusters of personnel who represent multi-functional disciplines committed to project goals. Work teams can be an effective method for managing and integrating parallel activities of complex development or production tasks. Some of the

advantages of work teams may include: (1) an overall reduction in the total number of cost accounts because of multi-functional groupings; (2) with respect to team resources, the work team manager has authority and managerial responsibility rather than their functional organizations; and, (3) effective integration of multiple disciplines on a single product enhances the probability of cost, schedule and technical success.

There are, however, some disadvantages to the work team organization. (1) The grouping of multiple functions within a cost account requires the consideration of labor rates below the cost account level. Some contractor systems may be unable to accommodate this. (2) Because work team cost account values tend to be larger than under other organizational structures, the decision to mix LOE and discrete work must consider both dollar value and the ratio of LOE to discrete. Also, to avoid distortion within the cost account, LOE and discrete efforts must be separated at the level of labor rate application. (3) Finally, personnel performing in a work team environment can sometimes lose touch with their functional organizations. This could result in lost training opportunities, loss of synergy with individuals of similar skills, and a feeling of alienation from the home organization. In addition, functional managers may view themselves simply as "resource brokers" rather than managers of functional processes because of loss of control over their personnel.

A.3. Designing the Contract Work Breakdown Structure (CWBS). The design and development of the CWBS to levels beyond that contained in the Request for Proposal (RFP) and the contract is the contractor's responsibility. To do this, the contractor considers a number of factors, such as, detail needed for job accomplishment, visibility of work-in-process, and requirements for cost and reporting. There must be a relationship between the CWBS and the SOW and the extension of the CWBS should result in a logical grouping of SOW tasks. As part of this process, decisions are made as to which efforts will be done in-house vs. subcontracted. The criteria require the identification of internal organizational elements and the major subcontractors responsible for accomplishing the authorized work.

It is generally recognized that contractors manage through an organizational structure rather than a CWBS. This approach is commonly seen in a "functional" work breakdown structure or Organizational Breakdown Structure (OBS). Although the government clearly recognizes this approach, there must be a clear relationship between the CWBS and the OBS. Normally, the work performed on one lower level CWBS element by one organizational element is the optimal level for management control. This is the cost account level. This is where technical effort is performed, actual costs are collected, and performance is measured.

A.4. Scope/Budget/Schedule Discussions. The discussion of scope, budget, and schedule among contractor PMs, functional managers, and cost account managers (including intermediate level managers as applicable) is important to organizational activities. It is through these discussions that the contractor establishes responsibility for accomplishment of program effort and goals and identifies those organizational elements that will actually perform the work on the contract. PMs are responsible for the entire contract effort and cost account managers are responsible for a piece of the overall effort. The proper selection of cost account managers is important. They should have the requisite decision-making authority to acquire and control resources in the pursuit contract objectives.

An early indicator of cost/schedule problems may be an inability to establish a realistic, technically sufficient baseline in a reasonable time after contract award. This may indicate ongoing disconnects between the PM's estimates and the cost account manager's beliefs as to what is needed to accomplish the work. Achievable scope/budget/schedule goals, therefore, are critical negotiations between the PM and the cost account manager.

Once there is agreement on scope/budget/schedule, responsibility for the contractual effort should be documented. Cost account managers are then held accountable for the achievement of the budget/work/schedule goals and will evaluate variances against them.

A.5. Managerial Feedback. Cost and schedule condition are a reflection of technical performance. As such, data characterizing the nature and scope of technical achievement serves as a basis for program decision-making

Managers should analyze performance measurement data on a proactive basis and assess variances to mitigate or avoid adverse cost or schedule impacts. Documenting this analysis, at the appropriate management level, provides not only a historical record of problems encountered and solutions implemented, but also supports the contractor's efforts to communicate information to both internal and external management. Managers should have a system of control that will identify, *in time to take corrective action*, problems that will be avoided if they take immediate action. They must assess the expected effect of corrective actions and predict the resulting impact on cost and schedule performance. Feedback systems measure the outputs of a process. Corrections are made to that process to obtain desired outputs. Proactive analysis monitors inputs to a process to ascertain whether the inputs are as planned. If they are not, the inputs and/or the process is changed to ensure the desired results. This includes careful and repeated forecasts using the latest available information of known or expected events, comparing what is desired with the forecasts, and taking action to introduce program changes so that forecasts will yield desired results.

Managers should carefully plan the availability of resources to meet expected requirements and contingencies. Evaluation of schedule performance and activity interdependencies, enables managers to see that they will have problems in such areas as costs or on-time delivery unless appropriate action is taken now. Knowledge of future performance and assessment of expected results should elicit actions that maintain desired control over cost/schedule/technical performance

Often, one of the results of the managerial decision-making process, is an adjustment in future plans and resource loads. Internal replanning can take many forms. Adjustment of future efforts based on knowledge gained from performance of the current effort is the primary objective. While doing this, management must take care to maintain a valid baseline that reflects proper planning and which permits valid comparisons of performance to the plan. When appropriate, management can decide to adjust on-going efforts to improve performance and efficiency in the consumption of resources.

A.6. Estimates at Completion. PMs and cost account managers are also charged with the responsibility of developing and justifying estimates at completion (EAC). "EAC" is a generic term and represents a manager's projection of the expected final cost of a scope of work. EACs are developed at the cost account level and summarized through CWBS levels and organizational levels to the total contract level.

The contractor's system description will identify acceptable EAC methods. These may range from an arithmetic calculation to a comprehensive, "bottoms-up" forecast. On a monthly basis, Cost Account Managers (CAMs) should evaluate the adequacy of remaining resources compared to the effort still to be completed. If necessary, an update to the cost account EAC should be made and submitted to management for consideration. Intermediate and program level management can decide whether to accept the new estimate or "challenge" the manager to perform better than the estimate projects.

It is sometimes acceptable to use formulae to generate an EAC. These numbers should be used to assess the adequacy of the monthly EAC. On at least an annual basis, a comprehensive estimate of all remaining work must be performed. This comprehensive estimate should be performed more often should program performance require it. Once this

estimate has been generated at the cost account level, intermediate and program level managers should evaluate its summarization for organizational and/or program-wide impacts. The final value reported to the customer in the external report should take all of these factors into account, including potential risk items, as well as cost avoidance issues.

B. Scheduling Process.

B.1. Introduction. Scheduling a major project is an iterative process that usually begins with the establishment of the major parameters within which the project must be completed. These include the contractual period of performance, program milestones identified in the contract, and other program milestones identified by the contractor. From this information, a program master schedule is established to define the major elements of work relative to time. This flow of time-phased effort may be accomplished by WBS element, work team, or major functional organization. If the program master schedule is also a contractual submission, then a contract data item will specify the requirements. Normally, the master schedule is by WBS element.

The scheduling process continues with the identification of organizational interfaces with the major CWBS elements. Intermediate schedules may be established at this point to define interfaces between these organizational elements in the performance of the effort. These interfaces would include key decision points, such as CDRs, Functional Configuration Audits (FCAs) and/or major tests. Those organizations that must provide inputs to or support for these key decision points should establish organizational schedules that reflect any interdependencies and interfaces.

B.2. Schedules for major subcontracts. Major subcontracted elements are scheduled to reflect the appropriate interface between the subcontractor and the prime in support of work accomplishment. Primary inputs to these schedules are from the subcontractors based on their contractual arrangements with the prime. Subcontract milestones are established to support prime contractor "need dates" and ensure proper integration of the two organizations. (See the Subcontract Management process description, paragraph H below.)

B.3. Intermediate schedules. On some projects, the effort may be of such a nature as not to require the establishment of intermediate schedules. The contractor may, therefore, build the internal relationships necessary to ensure fully integrated schedules at the master or detail level, whichever is appropriate.

B.4. Detail schedules and schedule integration. Detail schedules are used to correlate the activities of the working level organizations within a function, a WBS element and/or between lower level functions. These schedules may take any form as long as they support upper level schedules, ensure that performing organizations are planning their efforts to support intermediate (if appropriate) and/or contractual level milestones, and provide the basis for establishment of the PMB when resources are applied to them. Often, horizontal relationships are established at this level to make sure that organizational inputs and outputs correlate and that major contractual requirements are met. If there are intermediate schedules, either by WBS with functional breakouts or by function with WBS relationships, horizontal interdependencies may be established at this level. This is very often the case when networks are established as part of the schedule hierarchy.

Network based schedules are normally generated and used to schedule work based on the amount of time required vs. the amount of time available to complete a task. The scheduling system computes the amount of time required based on estimates of work duration. The amount of time available is computed based on the task's interdependencies with other tasks. This results in determining the program's critical path identifying all tasks that, if slipped, will cause the program's completion date to slip. Where the contractor has chosen to establish a

network schedule to define the interfaces and interdependencies within the program, this network schedule should correlate with and provide support for other schedule documents generated on the program. If appropriate, or if required by contract, a "critical path" should be defined in the network to alert management to potential program delays should planned events not occur on time. While not a requirement of the criteria, network schedules are often prepared by the contractor to ensure accurate establishment of functional or hardware interdependencies.

At this point, schedules have been generated which provide for all specified work to the lowest defined element of the CWBS in a way compatible with contract milestones and meaningful in terms of the technical requirements of the contract. Schedules should work together with other planning and control systems to the extent necessary for measurement and evaluation of contract status. Schedules also provide the means to show status of progress against the baseline, as well as forecasts of completion dates for scheduled work. The contractor's summary and detailed schedules should permit a comparison to be made of planned and actual status of program accomplishment based on milestones or other indicators used by the contractor for control purposes.

B.5. Schedule Statusing. Periodically, usually monthly, the contractor will status progress against the baseline plan. This statusing may take any form as long as it correlates with true, physical progress on the contract. On the schedule documents, it may take the form of a status bar that has been blackened to represent physical progress, the statusing of planned milestones, or, a combination of these two. Schedules that only show the passage of time with no relationship to accomplishment are normally not acceptable. The major exception is for level-of-effort activities.

As part of the statusing process, the contractor must include assessment of available resources and capabilities and provide forecasts that indicate the expected completion date of the effort. The scheduling system should readily display areas where forecast completion dates differ from the planned dates. When reconciling schedule information with performance measurement information, there should be a correlation between (1) the PMB and the schedule plan, (2) the cumulative BCWP and the status reflected against the plan, and, (3) the time-phased estimate to complete and the forecast of completion dates on the schedule.

As contract changes are generated, the baseline schedule must be revised to reflect the new plan. This should be done in conjunction with the revision to the PMB. Internal replanning actions that are accomplished as part of the normal management process, may affect some scheduled activities but may not always change the baseline. In either case, the resulting schedule must reflect the current contractual requirements, as well as the contractor's best estimate of activity completions.

C. Work Authorization and Budgeting Process.

C.1. Introduction. The organizing and scheduling processes serve as the basis for defining budgets and authorizing all work at the appropriate levels within the framework of the CWBS. Once the contractual effort is defined and scheduled to the maximum possible extent, resources for accomplishing the work are assigned, usually through the internal budgeting process. While scheduling is an iterative process to sequence all the work within prescribed time limits, budgeting is also an iterative process to provide for accomplishing the work within funding constraints. The result of these processes is the establishment of a PMB.

C.2. The Budgeting Process.

C.2.a. Initial Budget Division. The negotiated contract cost usually serves as the target for the distribution of contract budgets. Upon receipt of the contract authorization, the contractor PM may establish an MR account for management control purposes by withholding a portion of the total contract negotiated cost. This MR may be held at the total program level, major functional level or other WBS level (above the cost account level) specified by the PM prior to the assignment of budgets to lower WBS elements. The remaining budget may be placed into a "holding account" pending final distribution. This account is referred to as UB (UB) and serves to establish the initial relationship between budgets and scope of work. As the work is then progressively defined in greater detail and authorized to the cost account level, budgets for the planned work are concurrently distributed.

When all of the work for a given contract cannot be planned in detail at the outset, it should be initially divided into larger segments so that the entire contract requirement may be viewed as a sum of identified parts. On some development contracts, due to work scope and funding uncertainties, it may be impractical to identify future work beyond a significant contract phase or event (milestone), e.g., PDR or CDR. These milestones should be those events of primary interest to the PMs from the standpoint of assessing the adequacy of the design approach, the achievement of major technical milestones, or any other point where a technical evaluation of the program is warranted. The government and contractor PMs should identify these key technical review points during the negotiating process. In such cases, detail planning would be required for cost accounts, planning packages and work packages, only to the first review point. All planning beyond this point would be done in larger increments at a summary level, but in enough detail to permit resource analysis for downstream work.

At the first review point, such as a PDR, the technical, cost and schedule status of the program should be evaluated, the adequacy of the contract target cost reviewed, and the detail planning to the next review point initiated. Some detail planning should already be in place to accommodate near-term activity. This process is repeated at subsequent review points.

C.2.b. Summary Level Planning. Usually contract effort is distributed directly to the cost account. Sometimes, however, the size, criticality or multiple phases of the contract make this impractical. When this happens, the contractor may authorize summary level budgets, to a higher WBS element level, i.e., above the cost account level. The corresponding work scope and schedule are normally identified on a work authorization document designating the responsible manager. The summary level budget may include effort and associated budgets for two or more cost accounts. The budget is time-phased as part of the PMB. These budgets and their corresponding tasks are authorized to cost accounts when sufficient definition of the task can be made and detailed planning accomplished.

C.2.c. Lower Level Planning. As the contractual effort is progressively defined through the extension of the CWBS, the work normally breaks into different types of effort. Much of the work is discrete in nature and when completed it produces a tangible result or provides a completed product or part. The beginning and ending of discrete tasks are relatively easy to define and can be formally scheduled in terms of physical accomplishment. This type of measurable effort is referred to in the criteria as work packages. One of the most important steps in the establishment of the work package is the selection of the method by which earned value will be calculated. It is important that the most objective means of evaluating progress be used. Whatever the basis for establishing the initial budgets for the work package, earned value should be determined using the same basis. For example, if resources were loaded based on numbers of engineering drawings planned to be

accomplished, then earned value should be calculated based on the actual number of drawings completed within the assessment period.

Apportioned effort, sometimes called factored effort, may be discrete in nature, but its accomplishment is directly related to the performance of other work. Some support functions, such as quality assurance and inspection, are handled as apportioned effort. Establishment and maintenance of realistic formal allocation factors are important considerations in planning and controlling apportioned effort. Apportioned effort may be included in the work packages to which it is related, or it may be planned independently with budgets assigned based on a that portion of the discrete budget to which it pertains. The latter approach is usually preferred where separate performance measurement of the supporting organization is desired.

Besides work packages and apportioned effort, other activity exists which is more general or supportive in nature, called Level-of-Effort (LOE). Program management is an example of the type of activity normally treated as LOE. Because this activity does not necessarily result in a definable end-product or result, it is difficult to measure in quantitative terms. Earned value is measured by the passage of time during which activity is planned to occur. Since LOE does not lend itself to discrete measurement of accomplishment, it must be limited in amount and segregated from the measurable effort. Only effort that cannot be reasonably work packaged or apportioned to work packages should be planned as LOE.

Direct budgets are assigned to organizations performing the planned work identified to elements in the CWBS. Budgets for work packages may be stated in dollars, hours, or other measurable units. Budgets for cost accounts and higher levels are generally expressed in dollars. Indirect budgets may be assigned to specific functional organizations having responsibility for control at the cost account or work package levels, but these budgets must be established at the level identified by management for control of such costs.

To measure contract cost performance, it is important that internal budgets sum to the contract target cost so that the relative value of completed work can be determined. Budgets distributed to cost accounts, summary level planning packages, WBS elements, UB and/or MR should add up to the contract target cost on incentive contracts, or, to the negotiated, estimated cost on fixed fee contracts. The total of all direct and indirect budgets, UB and MR must equal the negotiated contract cost plus the estimated cost of authorized unpriced work.

C.2.d. Authorized Unpriced Work. Usually, before definitization of a contract change, budget for the authorized, unpriced (undefinitized) work resides in UB until negotiation has been completed. The budget for this work accurately represents the estimated cost submitted in the contractor's change proposal. Budgets may be fully allocated or assigned for only the work that is scheduled to begin in the interim period. Any remaining effort and budget are planned at a higher level or maintained in UB. If definitization of the contract change will be delayed, it is preferable to transfer work in UB to summary level budgets rather than leave it in UB for a prolonged period. Retaining a large amount of budget in UB for a lengthy time distorts performance measurement at the reporting level of the CWBS and below. Upon issuance of the formal contract amendment, any remaining effort is planned and budgeted when practical to ensure disciplined baseline planning. Adjustments are sometimes made to UB, MR, summary budgets, cost account budgets, or a combination of these for the difference between the negotiated cost and the proposal costs.

C.2.e. Change Incorporation. During the life of the contract, the customer may direct that changes be made in hardware design, schedules, specifications, and the like. These will usually take the form of a contract change. It is important that a similar process to the initial baseline establishment be implemented when changes occur. Budgets and work scope for the change will be distributed to the responsible organizations using the same techniques. Care must be taken not to disturb the baseline for the effort already underway while the new work is

being incorporated. Traceability from the budgets established for the initial work to the new budgets must be maintained to verify proper distribution of the change. If the contract change is still under negotiation, then the work and budget for only the near term effort need to be planned in cost accounts and work packages. The remaining budget/scope may be held in UB until negotiations are complete. Then, timely distribution is made into lower level CWBS and OBS elements.

C.3. Work Authorization Process. Before work begins, the work authorization process formally defines and identifies the work to be done and the organizational elements responsible. Task authorizations, work orders or other appropriate means may be used for this purpose. At whatever level the budget resides, an associated work authorization document must exist. This work authorization document provides the authority to proceed. A job assignment should describe the task to be performed, identify the organization or individual responsible for the job, authorize the expenditure of resources, and identify budget and schedule constraints.

The work authorization process starts at the total program level and continues through intermediate levels of the WBS, as may be required for control purposes, to the cost account level. When the contract award is received by the contractor, a formal work authorization is normally issued to the PM. This authorization serves as the authorizing document to issue budgets to responsible organizations to start with the contractual effort. The PM may then issue a work authorization to or through intermediate level managers (either program or functional) or directly to the cost account manager. In any case, the work authorization process must clearly establish responsibility and accountability for the complete contract budget in terms of value as well as scope.

An agreement is then reached between the distributing and the receiving organizations to perform the assigned work for the budget assigned within the specified time-frame. The work authorization document formalizes this agreement. At a minimum, the work authorization should be agreed-to by the designated functional organizational manager authorizing budget and the CAM responsible for accomplishing the work.

When the budget, work scope or schedule changes as a result of a formal contract change or an internal change, the work/budget authorization documents should be revised. For reconciliation purposes, the work authorization documents should show budget traceability by displaying previous budget, current change, and current budget.

D. Accounting Process.

D.1. Introduction. The purpose of this discussion is to provide a comprehensive perspective of the Accounting Process relative to the integrated management system. It is not intended to describe all facets of a generic accounting system but to cover those aspects that are necessary to support the ACWP portion of a performance measurement system. Because of this, the Accounting process description does not "flow" like previous sections but is segmented to address relationships with the performance measurement process. An acceptable accounting system should have these capabilities:

a. Providing the cost collection structure necessary for measuring performance based on BCWS, BCWP and ACWP.

b. Providing a system that is in general compliance with the Disclosure Statement as well as the contractor's written system description.

c. Recording direct costs on an applied or other acceptable basis consistent with the budgets in a formal system that is controlled by the general books of account.

d. Summarizing direct and indirect costs from the cost accounts into the CWBS and the OBS without allocation of a single cost account to two or more elements.

e. Complying with all Cost Accounting Standards (CAS), with particular emphasis on CAS 401, 402, 418, and 420 (see explanation below).

f. Ensuring actual costs used in variance analysis reconcile with data from the accounting system.

g. Ensuring that actual cost information is available for the preparation of EACs.

h. Providing the identification of recurring and non-recurring costs on a contract, and more specifically, on a unit or lot cost basis, when appropriate.

I. Adjusting direct and indirect costs according to acceptable accounting procedures.

j. Identifying the basis for allocating the cost of apportioned effort.

D.2. Concepts. The accounting process includes the following key concepts:

D.2.a. Cost Accounts. Ordinarily, cost accounts are established at the lowest level in the CWBS at which actual costs are recorded and compared with budgeted costs. As the natural control point for cost/schedule planning and control, the cost account provides a logical starting point for cost collection and evaluation. Where cost accounts contain numerous work packages with concurrent activity, separation of actuals at this level, while not required, may facilitate isolation of variance causes.

D.2.b. Direct Costs. As stated in the introduction, government contractors must record direct costs on an applied (as used) or other acceptable basis for performance measurement and unit costing purposes.

(1). Direct Labor costs are normally applied to work-in-process on an as-used (applied) basis (including apportioned effort).

(2). Direct Material costs may be applied to work-in-process on an as-used (applied) basis. Expanded requirements concerning the Material Accounting System are discussed in paragraphs D.4 and G of this appendix.

(3). Other direct costs are applied to work-in-process on an as-used (applied) basis.

D.2.c. Indirect Costs. The requirements of the accounting criteria are extended both to direct and indirect costs. Expanded requirements concerning indirect costs are expressed in the Indirect Cost Management Process description, paragraph E below.

D.3. Cost Accounting Standards (CAS). The contractor's accounting system must comply with all applicable Cost Accounting Standards. This section highlights the critical standards in relation to the approved integrated management system.

D.3.a. CAS 401: Consistency in Estimating, Accumulating and Reporting Costs. Contractor accounting systems need to achieve consistency in applying practices used to estimate costs for proposals with practices used in accumulating and reporting costs during contract performance. In addition, contractors must provide a basis for comparing those costs. Correspondingly, accounting practices used to prepare the data presented in reports that are required by the contract should be consistently followed concerning the accounting practices used to accumulate or estimate the costs.

D.3.b. CAS 402: Consistency in Allocating Costs Incurred for the Same Purpose. This standard ensures that each type of cost is allocated only once and on only one basis to any contract or other cost objective. All costs incurred for the same purpose, in like circumstances, are either direct costs only or indirect costs only with respect to final cost objectives.

D.3.c. CAS 418: Allocation of Direct and Indirect Costs. This standard ensures costs are consistently classified as direct or indirect, provides criteria for the accumulation of indirect costs, and provides guidance on allocating these indirect cost pools. The contractor must maintain a written statement of accounting policies and practices (CASB Disclosure Statement) for consistent classification of costs as either direct or indirect. Indirect costs shall be accumulated in indirect cost pools which are homogeneous. Pooled costs shall be

allocated to cost objectives in reasonable proportion to the beneficial or causal relationships of the pooled costs to the related cost objectives.

D.3.d. CAS 420: Accounting for Independent Research and Development Costs and Bid and Proposal Costs (IR&D/B&P). Contractor accounting systems must provide that IR&D and B&P costs are accumulated by project. Project costs incurred by a single segment, but benefiting more than one segment, must be accumulated at the company level. These costs are then allocated to the segments by either allocation to specific segments based on a beneficial causal relationship, use of the CAS 403 residual expense allocation, or by allocation to the final cost objectives using the same base used for G&A expenses under CAS 410.

D.4. Material Accounting System. This section describes the material accountability requirements a contractor's accounting system must satisfy. The material accounting system interface with the performance measurement process is covered in paragraph G below.

a. Direct material costs are those amounts recognized in the period associated with the consumption of materials without regard to the date of commitment or to the date of payment. The amount may be charged to work in-process when any one of the following events occur:

(1) materials are actually consumed;

(2) material resources are withdrawn from inventory for use;

(3) material resources are received which are uniquely identified to the contract and scheduled for use within 60 days;

(4) major components or assemblies are received on a line-flow basis that are specifically and uniquely identified to a single, serially numbered end-item.

Despite this broad definition of applied direct costs, some contractor accounting systems may not be capable of accounting for materials as they are "used." As a result, contractors may seek to validate the ability of their performance measurement systems to account for materials on an "other than applied" basis (i.e., at a point other than consumption). Of the other points at which this may occur (i.e., at commitment, at receipt, at payment, at inventory acceptance or at inventory release), the only points the government will not consider are the point of "commitment." and point of payment if it is not reflective of actual material use.

A critical requirement for acceptance of a contractor's "other than applied" basis of material accounting is consistency between the methods used to account and budget for materials. If materials are to be accounted for at the time of receipt, material budgets should be established based on the point of expected receipt. It is not acceptable to budget for materials at one accounting point and subsequently account for them at another point. To do so would distort the performance measurement data and misstate the status of contractor progress.

b. The contractor's material accounting system should possess the following characteristics:

(1) An accurate cost accumulation system that assigns material costs to appropriate cost accounts in a manner consistent with the budget. Periodic internal audits should be performed to insure compliance with established policies and procedures.

(2) Uses recognized costing techniques that are consistent with Generally Acceptable Accounting Principles (GAAP).

(3) Direct costs for material are normally applied to work-in-process on an as-used basis. There may be cases, however, where it is not reasonable or possible to make this a uniform requirement. In this event, if a contractor’s system provides the fundamental elements for cost and schedule performance measurement, for determining unit/lot costs and segregating recurring cost from non-recurring costs, it may be accepted even though it does not record material as a direct cost at the point of usage.

(4) Records that fully account for all material purchased for the contract including the identification of residual inventory items.

In those instances where the contractor maintains separate stores inventories, actual or applied direct cost "stores" material or components will be moved from the inventory account as issued. All unused material should be returned to stores. Actual direct material costs include material in the final product, scrap, damaged materials and so forth, plus any material purchased for the contract, but not used, for which an alternate use cannot be found. In addition, unit cost projections for follow-on procurements should be expected to include consumed material, plus requirements for schedule assurance based on waste and spoilage amounts determined from prior contract performance.

D.4.c. Material Management and Accounting System (MMAS). While the key elements of MMAS address broader issues in the material management area than performance measurement, the following standards affect material performance measurement and should be considered on contracts requiring compliance with the criteria:

D.4.c(1) MMAS Standard #2. Ensures that the costs of purchased or fabricated materials charged or allocated to the contract are based on valid time-phased requirements as affected by minimum/economic order quantity restrictions. When the material system does not comply with the standard, the contractor must demonstrate that there is no significant adverse impact to the government, and further, that the cost to make the material system compliant would be excessive in relation to that impact.

D.4.c(2) MMAS Standard #3. Provides a mechanism to identify, report, and resolve system control weaknesses and manual override. Systems should identify operational exceptions such as excess/residual inventory when known.

D.4.c(3) MMAS Standard #4. Provides audit trails and maintains records necessary to evaluate the system and verify, by transaction testing, that the system is operating as intended.

D.4.c(4) MMAS Standard #5. Establishes and maintains adequate levels of record accuracy to include reconciliation of recorded inventory quantities to a physical inventory by part number.

D.4.c(5) MMAS Standard #7. Requires maintenance of and disclosure of a written policy describing the consistent, equitable and unbiased logic for the costing of material transactions, whether or not allocations from common inventory are used.

D.4.c(6) MMAS Standard #10. The system should be subjected to periodic audits to ensure compliance with established policies and procedures.

Contractors maintain material management and accounting systems (MMAS) to manage material inventories and account for material costs. DCAA audits contractor's MMAS to ensure compliance with ten specific standards contained in the DFARS.

D.4.d. Excessive Scrap. Contractor accounting systems must be able to track the use of material items in excess of planned requirements. This information must be passed to the material manager by the performance measurement system for analysis and proper action.

D.5. Subcontract Accounting. The contractor's accounting system must provide for the recording of actual costs based on payment requests submitted by subcontractors. Because of the time lag involved in the payment of subcontractor invoices, most prime contractors use other forms of "actual costs" for performance measurement purposes. These can include, ACWP from the subcontractor's performance measurement report or actuals based on billings submitted by the subcontractor but not yet recorded in the prime contractor’s accounting system (estimated actuals). Whichever alternative is used for recording subcontractor ACWP, it must be reconciled with recorded actual costs on a routine basis. The Subcontract Management Process (paragraph H) covers the unique qualities of subcontractor actual costs.

D.6. Estimate at Completion (EAC). The C/SCS criteria require the contractor to periodically develop comprehensive EACs. In developing the EAC, actual costs to date must be considered. The cost collection structure established within the accounting system provides the necessary actual cost information to the cost account managers and higher level managers for inclusion in EAC updates.

E. Indirect Cost Management Process.

E.1. Introduction. This section explains the Indirect Cost Management process from the development of the indirect budget to the calculation of the indirect EAC including the charging of actual indirect costs to contracts.

E.2. Management of the Indirect Process. A contractor's indirect budgets and costs must be managed and controlled. Procedures and methods used will vary from one contractor to another. Due to this diversity, it is important to examine and understand the contractor's indirect management system and control procedures. The contractor must assign responsibility for all aspects of the indirect system by designating the organizations and/or individuals with responsibility for: (a) indirect budget development and assignment of resources, (b) indirect performance (cost and schedule) and control, (c) analysis of indirect variances (cost, schedule and at-completion), (d) indirect budget revisions and, (e) development of indirect EACs. The organizational responsibilities and the specific duties of personnel should be clearly defined either in the system description or in a procedure referenced in the system description. Assignment and control of indirect resources must also be clearly defined and should be commensurate with the authority to either approve or avoid the expenditure of resources. The limits of responsibility should be identified and understood by accountable personnel. Written policies and procedures should describe the indirect, budgeting, accounting, and estimating duties in sufficient detail to provide an overall understanding of the operation of these systems.

E.3. Budgeting of Indirect Costs. After contract award, the contractor must establish direct budgets for all authorized work with separate identification of cost elements (labor, material, ODC, etc.). This includes establishing budgets for indirect costs. This indirect budget should be a realistic, time-phased forecast by organization; for example, department or cost center, and procedures should identify the overhead pools, the anticipated direct business base, and the elements of indirect expense in the overhead pools consistent with the contractor's disclosure statement, if applicable. The indirect budget should be based on the most current information available.

Average indirect rates established for the life of the contract normally cause too much distortion in cost performance and are not acceptable. Annual rates are generally acceptable, and should result in a valid time-phased estimate. Most contractors use either annual or quarterly rates that coincide with their business calendar. It is desirable to use rates that provide the most valid estimate of costs for the effort to be accomplished during a particular period.

After the budget is developed, it should receive final approval by an appropriate level of management. The relevant budgetary information should then be distributed to individual managers responsible for accomplishing budgetary objectives, and to personnel responsible for monitoring budget performance.

E.4. Indirect Cost Accounting. The contractor should have procedures in place that document how indirect costs are recorded and explain how indirect costs are allocated to final cost objectives. The contractor's indirect costs should be allocated to cost objectives in reasonable proportion to the beneficial or causal relationships of the pooled costs to cost objectives, consistent with the contractor's disclosure statement, if applicable. (Refer to the

accounting process section for a discussion of the allocation of direct costs in accordance with CAS 402 and 418.)

E.5. Analysis of Indirect Costs. Indirect cost performance against budget must be analyzed on a monthly basis at the organizational level responsible for indirect cost control. The indirect rates used to determine BCWP must be the same as those used to establish BCWS. Significant indirect cost variances resulting from differences between planned and actual rates should be identified, documented and reported to the appropriate level of management. The causes of these variances must be identified and possible corrective actions considered. Corrective actions should be implemented promptly. This increases the likelihood that budgetary objectives will be met by providing individual managers with the opportunity to take corrective actions to control potentially significant variances and reduce costs.

E.6. Updating the Indirect EAC. The impact on remaining effort should be analyzed. Procedures should provide for prompt revision of estimates-to-complete in the contractor's cost reports. When applying indirect rates to estimated resources to complete the contract, it is incumbent on the contractor to use the best information available; i.e., the most current rates. This will ensure that the EAC is the most accurate reflection of expected completion costs. The indirect BAC should be compared to the indirect EAC. Responsible management must report the reasons for significant variances and what corrective action is being planned or taken.

E.7. Changes in the Indirect Rates Budgeted and projected indirect rates must be analyzed on at least an annual basis, and on a more frequent basis, if necessary. Emphasis should be placed on the analysis of the business base. Significant changes in the business base could affect the indirect rates, as well as the indirect rate allocation structure. Management improvements and economic escalation must also be considered in forecasting future indirect rates. If MR is used to adjust for the effects of changes in indirect rates on a contract, documentation must be maintained to indicate how the MR is controlled.

F. Manufacturing Process.

F.1. Introduction. In the production or manufacturing phase, components first are fabricated or purchased and then joined together in progressively larger subassemblies and assemblies until a complete system is produced. Normally, system design and development are organized and performed along the lines of the major subsystems of the overall system. In the definition and establishment of the manufacturing PMB, proper recognition should be given to the unique characteristics of the production process as opposed to those of design and development.

F.2. Contract Work Breakdown Structure (CWBS). In extending the CWBS, it is essential to recognize and accommodate the differences between the development and production phases in the organization, performance, and management control of work. The design normally is developed in progressively greater detail until it is established at the component level. The production sequence normally follows a physical parts breakdown rather than the subsystem breakdown characteristic of design. It may be impractical, therefore, to use the same lower levels of the CWBS in the production phase as were used in the development phase. Contractor extension of the production WBS requirements should be compatible with the manufacturing breakdown structure and should be limited to those levels essential for management control.

F.3. Contractor's Organization. The lowest echelons of production management are primarily concerned with sustaining the required manufacturing throughput as defined by work orders and schedules. Cost and schedule management by contract or product is normally the

responsibility of higher echelons of management within the contractor's production organizations. Management is typically supported by one or more production planning and control organizations that develop integrated schedules for the performance of all production work and prepare work orders. The planning and control of production typically are in terms of the major functional organizations responsible for material and component procurement and handling, component fabrications, and product assembly.

a. Work orders may cover a manufacturing item or lot of like items and are likely to cross the boundaries of lower level organizations as the manufacturing lot is moved through the various manufacturing processes.

b. Cost account responsibility has traditionally been assigned to a functional manager with line authority over those performing the work. This is to ensure that the proper resources are available to perform the cost account effort. Because of the characteristics of the manufacturing process, the management planning and control of cost account work in a continuing manufacturing environment may not always be performed by a single individual. The cost account management function, however, must be assigned to the responsible manufacturing organization, and a single responsible individual must be assigned from that organization to manage each cost account. The procedures used for assigning responsibility and for the performance of the planning and control of cost account work must be documented.

c. When work teams are used, the individual assigned to the team by the manufacturing organization must have the necessary authority to ensure that needed resources are available to support the completion of the hardware item assigned to the team.

F.4. Planning & Budgeting. On production contracts and some Engineering Manufacturing Development (EMD) contracts, the manufacturing planning and budgeting process could entail interfaces between multiple organizations and the integration of a number of automated manufacturing systems. The contractor must document and demonstrate how these systems are interrelated and used to authorize work, schedule the work sequence, establish and maintain time phased budgets, and identify physical accomplishment.

F.4.a. Scheduling. The detailed production build schedule must be sequenced to support the achievement of higher level schedules including those specified for cost accounts. The production schedule is typically developed through "backward" or "set-back" scheduling based on contractual hardware delivery dates. Intermediate or detail schedules are typically integrated to generate these production schedules. For example, there may be a lot release schedule and line move schedule that together develop key dates from which fabrication and material requirements are set back. Manufacturing operations schedules may exist to schedule factory effort from the start of fabrication of the first lot of detail parts, through assembly to end item delivery. All manufacturing schedules must be integrated vertically and horizontally with other key schedules, such as material requirements planning and engineering release schedules, to support the deliverable end items. Resources are loaded to support these schedules and maximize utilization of the factory.

Along with the requirements of the overall program scheduling system, production scheduling and the resultant cost account planning contain unique requirements:

(1) Schedule spans established for production efforts should reflect learning curve improvements and realization factors.

(2) If a manufacturing work package is made up of several tasks which have their own schedules that directly relate to a higher level schedule (cost account or intermediate), there is no need for the task schedules to be listed on the work package budget document or to have a document called "work package schedule".

(3) Whenever possible, the contractor should use natural planning horizons based on design completion to minimize future budget and schedule perturbations due to engineering change. Strict planning horizons limit the manager's ability to detail plan with accuracy and confidence

F.4.b. Work Authorization. Special work authorization documents are used in the manufacturing process. These work authorization documents further define work within the work task at the level at which work is performed. These lower level documents implement previously authorized contractual work within the limits established by the contract. Examples include: Shop Orders, used by manufacturing to authorize the fabrication of parts, subassemblies, and assemblies; Tool Orders, used by Tooling to authorize tool design, fabrication, and test; and other authorizing documents, used by manufacturing to authorize the withdrawal of material from inventory.

F.4.c. Cost Account Development. The levels of the WBS that define appropriate production cost accounts in conjunction with the organization breakdown level are related to the hardware involved. The level of CWBS appropriate for cost accounts in an electronics production contract is unlikely to be suited to a production contract for aircraft. The contractor typically will have a breakdown of the hardware by assembly, subassembly, component, and part number. This breakdown normally will be aligned with the sequence of manufacturing operations followed in building the hardware, and it can be of considerable use in determining the appropriate level for establishing cost accounts. The lowest level of a hardware manufacturing breakdown, the individual part, is almost never the appropriate level for the cost account. The level chosen for cost account assignment should reflect the normal control point used by the contractor within the factory. It should also ensure that data summarization and reporting requirements for the customer are satisfied. Care should be taken to allow the contractor the flexibility to structure a production CWBS that is compatible with the manufacturing breakdown of the production hardware. In general, it is more economical and effective to establish cost accounts for production at higher levels of both the CWBS and the OBS than would be the case for comparable development effort. Cost accounts should not be established at such a low level of the CWBS that repetitive reporting of detailed performance data would be of questionable utility.

The selection of a too low an organizational level for the production cost account is likely to result in the assignment of cost and schedule management and analysis responsibilities at a level that is inappropriate. Tracing of cost and schedule data to very low levels of detail (that is, part number and performing organization) is normally not a problem in production. A satisfactory production planning and control system should have this capability, but cost accounts need not be established at that level. The establishment of cost accounts at the level of major functional departments (or comparable organizations) within the overall manufacturing organization usually results in the proper level of control.

F.4.d. Establishing Work and Planning Package Budgets. The baseline plan for manufacturing work includes performance measurement indicators (milestones, earned units, scheduled output, etc.) that are clearly identified and directly related to cost accounts. These indicators must clearly represent the physical progress of an identifiable quantity of work and be assigned a value reflecting the planned cost of that work. These values must summarize or reconcile to the total budget for the cost account.

F.4.d(1) Using Manufacturing Resource Planning II (MRP II) Systems. When the contractor’s existing manufacturing resource planning system is used, it must serve as the basis for the development and substantiation of the cost account and work package schedules and budgets. Because these systems already consider required resources, schedule constraints, and work standards, their data can be used in the development and monitoring of

cost account budget. Because these systems provide real time information, however, care must be taken when using raw MRP II data, as this may cause unwanted swings and distortion in both the baseline and the reported performance. The MRP system must assure a valid baseline that reflects the build plan.

F.4.d(2) Work Package Definition. A manufacturing work package is derived from the relationship between the CWBS and the manufacturing organizational structure and represents a logical subdivision of this relationship. Manufacturing work packages tend to be quite short and discrete as natural products of the fabrication and assembly operations.

(i) Manufacturing typically produces a finite output according to a detailed schedule. There are many reasonably accurate and objective techniques for measuring manufacturing performance. The objective is to select as the "work package" the work subdivision that best satisfies the requirement for performance measurement.

(ii) It is emphasized that the term "work packages" is generic and is used to identify discrete work tasks. In some production control systems involving repetitive manufacturing operations, objective indicators reflecting groups of tasks may be used and viewed as work packages. When objective indicators are used, values should be established each month based on the tasks in the group. The monthly value established for the group of tasks becomes BCWS for the month.

(iii) A manufacturing work package may be: a combination of several part numbers; a single part number; a combination of several shop traveler packets; a group of sequences on a shop traveler packet; or other logical product structure/manufacturing subdivisions, such as:

- A combination of part numbers grouped in one work package (that is, all parts going into one assembly may be a logical grouping for a work package of this type).

- One part number in a work package consisting of one or more shop releases. Each shop release or sequence or combination thereof may be considered as a work package milestone.

- One shop release as a work package. Each sequence or combination of sequences may be considered work package milestones.

- Individual sequences or combination of sequences as work packages.

(iv) Since accurate measurement of in-process manufacturing is not usually a problem, the most compelling reason for the selection of the smallest (shortest duration, least value) work subdivision as the production work package is to minimize the need to make changes to the schedules or budgets for open (in-process) work packages or those scheduled to be started in the current accounting period. These types of changes are restricted by the criteria in the interest of preserving a stable near-term PMB. The smallest, formally defined subdivisions of manufacturing work are, in many production control systems, scheduled with definitive dates only a short time before their start. Adjustment of this planning is allowed under certain conditions that are explained in paragraph 3-8.c(3), Change Incorporation.

F.4.d(3) Using standards, learning curves and realization factors in planning work and planning package budgets. On production programs, and some EMD programs, the build (Manufacturing, Tooling, etc.) budget may be derived from the application of Industrial Engineering labor standard time values. These labor standards are "base labor" times for discrete elements of work or operations involved in making a part. The labor standard method of planning normally includes the documentation of the method used to perform the work, which has been defined and approved by management, and the times, allowances and calculations used to derive the standard. Labor standards, factored for realization, are usually used for manpower forecasting, scheduling, budgeting and, to some extent, performance

evaluation. The labor standards are typically expressed in segments of time and are budgeted at the applicable level by application of a target factor.

(i) A realization, or variance factor, will be applied to the standards to arrive at factored standards for planning purposes. The factored standard hours are the basis for BCWS. The objective in developing BCWS is to represent, as closely as possible, the expected ACWP that will be incurred. When using the standards method, care must be exercised to establish work packages at a level that permits realistic performance measurement, cost collection and adequate control. A contractor must use anticipated learning when developing time-phased BCWS.

(ii) BCWP should be calculated and accumulated in the same manner as BCWS was planned; i.e., if engineered standards, factored for realization, are used to plan BCWS, then BCWP should be the result of accumulating earned engineered standards.

F.4.d(4) Planning and Budgeting For Change. In development programs designing and producing hardware, the manufacturing process can be impacted by engineering change orders that force changes and disruptions in the build cycle. This can cause a number of problems in controlling the PMB for both the engineering and the manufacturing organizations. The contractor's management control system should be able to handle rapid work and budget adjustments needed to maintain the baseline and report earned value as close to actual work accomplished as possible.

F.4.e. Earned Value. Earned value must be accumulated in the same way the work was planned. Cost accounts and work packages for hardware fabrication, subassembly, and final assembly will normally use earned standards in arriving at BCWP. As shop or work orders are released and work is performed, typically the MRP system records accomplishment in terms of operations or steps completed for each order, usually daily. During the monthly cost/schedule reporting cycle, operations completed are summarized, standard hours are reported and BCWP is calculated. Typically, this will equate to the portion completed of the total work package budget in standard hours.

(1) The breakdown of manufacturing effort into work or shop orders which specify the processes or assembly steps, materials, and organizations necessary to fabricate or assemble a manufacturing lot, and which have assigned schedules and budgets or values, is an accepted general practice in the management of manufacturing effort.

(2) Examples of the use of objective indicators for measuring accomplishment of repetitive manufacturing operations (see paragraph F.3.d(2)(iii)) may include:

(i) The use of milestones with assigned or readily determinable budget values.

(ii) Direct measurement of accomplishment in terms of units of work; that is, some form of an earned or equivalent unit measurement systems.

(iii) An input-output measurement system that compares planned levels of product throughput with actual product completions.

These indicate the principal types of manufacturing measurement systems and reflect that a contractor that already has an effective means of measuring manufacturing performance should be able to satisfy the criteria, providing that this means of measurement is integrated with the contractor's baseline plan for the performance of the manufacturing work.

(3) Apportioned effort depends on or relates directly to the performance of other effort. For example, quality assurance and other inspection functions are frequently treated as apportioned effort based on the amount of manufacturing effort. Apportioned effort may be included and budgeted as a part of the work package or cost account to which it relates or may be established as a separate work package with its own budget which is based on a percentage of the related work package or cost account budget.

F.5. Accounting. The accounting system must be able to collect the actual costs of factory efforts in such a way as to support management information needs and contractual reporting requirements. For production contracts, data collection requirements may include:

F.5.a. Unit/lot Costs. Unit or lot costing should be considered when enough units are contracted for, or anticipated, and meaningful data can be obtained. When this method is employed, production schedules will have to be prepared in sufficient detail as to lot composition to determine the appropriate cost collection method necessary to accommodate the requirement.

F.5.b. Recurring and Non-recurring Costs. Recurring and non-recurring costs can occur in every phase of a program. The contractor's accounting system must have the capability to separate recurring and non-recurring costs. Typically, each cost account or work task is identified as being either recurring or non-recurring by using separate charge numbers. . When contractually required, this information will be reported to the customer in the appropriate external report.

F.6. Analysis. Once standards, realization factors, metrics, or best estimates are established, it is essential that actual performance be monitored on a continuous basis to analyze progress, to update both the EAC and the corresponding manufacturing schedule, and to make management decisions. The effectiveness of the work measurement system is typically dependent on how effectively the standards are used, as well as the quality of the standards. The contractor should use all available information to analyze performance.

a. The cost and schedule variance analysis for manufacturing effort should include data and information that contains efficiency realization, cross organizational or across work team schedule impacts and potential risks, factory manpower analysis, critical material availability, etc.

b. On a recurring basis, at least monthly, the contractor must analyze the effects, if any, that actual manufacturing operations performance and efficiency will have on the EAC. This includes analysis of factory efficiency, actual realization and estimating metrics.

c. Many internal and external pressures can affect the factory's ability to meet schedule and/or it's EAC: poor standard hour and/or realization factor planning, material availability, engineering change orders incorporated in the factory line, out-of-station work, rework, etc. The contractor's management system must be flexible and capable of assessing this volatile environment to keep the forecasted schedule current always. This schedule forecast must reconcile to the current EAC.

d. Engineering change orders may disrupt manufacturing operations. For this reason, it is essential for the contractor to assess the cost and schedule impact of each change on every organization or work team. This is typically accomplished through a change board. The contractor's management procedures should discuss how changes are analyzed for cost and schedule impacts, as well as how these impacts are reflected in the PMB and subsequent data analysis.

F.7. Revisions. Changes occur in the manufacturing process in a variety of ways. The key to maintaining a valid baseline and generating good management information is to control the changes, whether due to contractual changes or internal replanning, while ensuring that the factory operates efficiently. Because of this, the criteria recognize certain flexibility in the manufacturing process that is not available in other areas.

F.7.a. Daily changes in an MRP environment. The cancellation (closing) and re-issue of a new work package for each change generally does not constitute a practical or economical approach in manufacturing, particularly for contractors who have automated their production scheduling and manpower planning (and, in some cases, also work order preparation and issue).

F.7.b. Changes to work/planning package budgets. A certain amount of flexibility in the re-scheduling of open manufacturing work packages is appropriate and acceptable providing procedures exist which prevent the inadvertent invalidation of baseline schedules and budgets through these detail-level changes. The substance of such procedures should be to limit the range of re-scheduling to maintain consistency with key production schedule dates. There should be no changes to the budgets scheduled to occur in the current monthly accounting period. This is required to maintain baseline stability.

F.7.c. Changing schedules. Re-scheduling must be constrained to maintain consistency with key production schedule dates. Key production schedule dates define the required completion dates for key elements of the manufacturing plan and are normally found on internal production schedules. As long as the MRP schedules and program schedules agree and program constraints such as the contractual delivery dates can be met, changes within the MRP system normally are only reflecting internal workarounds or updates. Internal MRP workarounds are merely using the float or set-back slack existing within the MRP scheduling system. If the MRP system schedule goes beyond the contract requirements, however, the MRP system would then provide forecast dates reflecting its current operating plan. At that point the baseline integrity could be compromised if the MRP system is used as the program operating plan, since MRP would no longer be inaccurate source for baseline schedule data or BCWS. In effect, the program baseline could “float”. Also recognize that there are many legitimate reasons why MRP could appear to depart from meeting program milestones when in reality the milestones will be met. For example, in the case of a workaround where items are supplied out of existing stocks or inventory on a borrow-payback basis, MRP would simply reflect the schedule to produce the payback items. In such a case the program schedule and milestones could still be viable but raw MRP data could give the erroneous impression that the schedule would not be met. The key point is to understand that MRP must be allowed to perform its primary function while recognizing that raw MRP data can impose erroneous status. It is important to recognize this potential problem and establish procedures that prevent losing schedule and baseline discipline.

F.7.d. Changing standards and variance factors. Standard hour revisions may occur at any time. If the standard hour revision results from a planning or engineering change then BCWS may be adjusted. BCWS should not be adjusted due to a change in standards caused by a change of method, tool, work place, job location, or shop practice if this change was anticipated as a part of the realization factor. Maintaining the original budget will result in information that shows the improved performance resulting from the change. Capturing this information supports future plans and estimates for similar type work.

F.7.e. Traveled or transferred work. Traveled or transferred work is any effort that is moved, before completion, from one location to another. This could be from one manufacturing organization to another, subcontractor to subcontractor, subcontractor to prime or vice versa. The movement of work typically occurs to meet schedule. The contractor's management system must be able to accommodate these movements, their impact on the PMB, and their effect on performance measurement information.

(1) When effort is transferred, the sending organization should close that work package or cost account (report complete) and transfer the remaining scope, budget and schedule to the receiving organization. This receiving organization must plan the effort according to the program schedule baseline that supports the contractual milestones. This may place the receiving organization in a schedule variance condition, but the overall reported contract schedule performance will remain accurate. The receiving organization then updates the schedule forecast.

(2) When an engineering change is required on a specific piece of hardware or subassembly, the actual costs (and any budgets) must remain within the CWBS hardware leg, even if the hardware has moved to integration and test. It would distort the performance of both the hardware CWBS element and the integration and test CWBS element if hardware engineering orders are rolled up to integration and test just because the hardware happens to be in that stage of development.

F.7.f. Retroactive changes. Because budgets associated with near term work should be well-planned, retroactive changes to budgets for completed work associated with the change should not be necessary. In an EMD environment, however, it sometimes becomes necessary to retroactively alter budget and earned value due to engineering change order activity that requires CAMs to immediately start work without a negotiated budget. The contractor should keep this activity to a minimum, issue the necessary authorization documents, and incorporate the budget and earned value as soon as possible.

F.8. EAC Updates/Revisions. At least monthly, the CAM should review the EAC for their efforts and update them as necessary. The EAC for manufacturing should consider the amount of realization, scrap, schedule impact, workarounds, rate analysis, etc. At a minimum, the CAM must take into account the impact of: actual realization versus planned; updates to engineered standards that may provide improved performance during future efforts; potential capital improvements within the factory that will increase productivity; and impending changes to production schedules. The time-phased ETC for the accounts must span the same period as the latest forecasted manufacturing schedule.

At the appropriate level, the monthly and comprehensive EACs must include inputs from functional organizations such as production control, industrial engineering, materiel, finance, and any other plant functions that can affect the manufacturing schedule and impact cost.

G. Material Management Process.

G.1. Introduction. The term "material" includes any property that may be incorporated into or attached to an end item to be delivered under a contract. Material also consists of any property that may be consumed in performance of a contract. Material includes raw and processed items, manufactured parts and equipment that are purchased according to specification, small common items held in inventory and purchased services. Material can be associated with engineering effort such as design and testing, or with production of deliverable hardware.

Material is normally purchased from outside vendors, but it may also be supplied by other divisions of the contractor's company. For inter-divisional transfers of material, a contractor's material control system should have formal procedures covering areas such as dollar value thresholds for material transfers and provisions pertaining to profit for material transfers by performing organizations.

G.2. Material Requirements Definition. Material budget planning begins with the development of a priced Bill of Material (BOM) during the proposal phase. The BOM is usually an indentured parts breakdown, usually following the outline of the CWBS, of the system being produced and identifies all material required for performance of the contract. The technical basis for a BOM should reflect specific design or production requirements that reference drawing numbers or "similar to" configurations. The material required for the development phase of the unit to be built and the quantities of raw material required for production of an end item should also be identified. Factors such as attrition and minimum quantities should also be considered in developing the material estimates. Once the BOM has been extended to the part number level, quantities required are established for each part and a value assigned. These are extended to establish the initial Priced Bill of Material (PBOM). The PBOM value

establishes the initial material budget value for the contract. Adjustments based on final contract negotiation may impact the amount of budget available for material procurement but normally will not change the BOM itself.

Estimating BOM costs in an R&D environment involves a similar process where all known material requirements are identified by a specific part number with a firm price, and unknown requirements are identified by a "similar to" part or assembly identifier with documented engineering price estimates. The BOM should include a unit cost, quantity and total cost for both known and "similar to" parts and assemblies.

A make or buy committee may be established composed of representatives from the engineering, manufacturing and purchasing functions. This group formally meets to determine whether it is more cost-effective to manufacture parts in-house or to procure them from outside vendors. A contractor's material control system will describe how make or buy authority is established. The results of this committee's activities will be a designation of those items that are considered "material" that will be procured through the purchase order method, and those "subcontracted" items that will be procured by way of the subcontract process (paragraph H). Material budgets items will be distributed to the cost account managers who have been assigned responsibility for managing material items on the contract.

G.3. Authorizing Material Work. In a development type effort, material management will normally be assigned to the engineering organization tasked with the responsibility for designing, developing and/or testing the hardware. In these cases, the material budgets and scope may be contained within the same authorizing document that authorizes the labor and other cost elements. In a production environment, responsibility for material management is often assigned to the Material organization that is tasked to ensure that production material is available to support factory requirements and optimize factory loading. In this case, authorization of material budgets and scope is usually separate from the labor that will be responsible for consuming the material. In either case, the process must establish material budgets and scope within the proper CWBS and OBS elements to ensure accurate and adequate cost collection and reporting.

G.4. Planning Material Budgets. Many contractors use automated MRP systems to schedule material so that production schedules are met with only the minimum required investment in inventory. MRP has evolved from a relatively simple inventory control technique to an integrated system for material scheduling, estimating, cost accounting, and manufacturing requirements planning in general. Material budgets and schedules in a contract baseline are generally a direct output from and should be reconcilable with data from a contractor's MRP system.

Material schedules should be planned according to the engineering development or production schedule. Detail scheduling is done in terms of a "set back" schedule where production "need-by" dates are established, and the time needed for delivery and ordering are set back from the time the material is required on the factory floor, at the shipyard, or at the test facility. This set-back time must also take into account the "lead time" for the material item to be procured. This is the time between purchase order issuance and material delivery and will vary from several days to several years depending on the type of material involved. (For production contracts, these latter items may be procured as "long-lead" material and are often contracted separately from the production lot for which they are intended.) This overall process establishes the total amount of time required to procure the material. In all cases, material schedules should provide sufficient specification, ordering, and delivery lead time to meet engineering or manufacturing need-by dates.

Production material cost accounts will sometimes include a budget for estimated repair/rework. The budgeted value for repair/rework may be derived by applying a historical

repair/rework factor to the total cost of the BOM. Some contractors use this method for estimating repair/rework cost for both proposals and contract baselines. Repair/rework cost budgets are usually spread across the time when the repair/rework is expected to occur. These budgets may be established as either apportioned effort or LOE.

The total quantity of material budgeted for a contract includes an amount for material above the required quantity established in the BOM. The budget for it is derived by applying a factor to the bottom line total of the BOM. It is normally a combination of two rates: (1) a rate to cover actual/historical repair/rework amounts; and, (2) a rate to cover other contingencies such as material purchased in anticipation of excess repair/rework, residual material that will be disposed of after contract completion, and/or supplier termination costs. The percentage value of a usage rate is usually based on historical experience from similar contracts.

Budgeting for production tooling can be based on a historic rate per hour of production labor. This rate is generally applied at the cost account level against the budget of a production tooling labor cost account. Normally each major tool should have a separate work package. The tooling material work package should be planned so that material is available to support the start of labor for the tooling.

Planning material budgets in an R&D environment is significantly different from the production environment. Many times, design is incomplete for high dollar value items. In these cases, contractors should maintain budgets for undefined material requirements as either summary level budgets (below the reporting level of the external performance report but not assigned to a specific cost account) or in planning packages below the cost account level. These budgets will be refined as more design information becomes available. Most material consumed in an R&D effort will be “direct delivery” to the CAM. In this case, the material budgets should be planned based on dates established by the CAMS using planned events from the program schedule.

There are situations where material can be planned and measured as level-of-effort (LOE). This is normally the case where material is of a supportive nature and can include rentals, leases and maintenance contracts, low dollar value, common items such as lubricants and miscellaneous hardware, electronics, and spare and replacement parts that are purchased on an as-needed basis. Contractors should minimize intermingling of discrete and LOE effort within material cost accounts.

Material earned value for low-value material can also be determined by using an apportioned effort technique. This involves crediting material earned value according to the earned value credited for a base such as manufacturing labor hours, or high-value kitting or issuance.

Common minor material, such as disposable items, may be scheduled and budgeted on a rate per direct hour of manufacturing labor based on historical experience. Budgets for purchased services may be planned according to the anticipated monthly charge for the service.

G.5. Ordering & Receiving of Material. The process of ordering, receiving and accepting material affects the baseline established for that material as well as the resulting earned value. There are some differences between R&D and production material in this area.

G.5.a. R&D. When a part number is identified on an engineering release, the engineering function initiates a purchase request (PR) to buy the item. The purchasing department buyer is responsible for surveying potential vendors and obtaining price quotes and delivery schedules for the item. Contractor inventory is also surveyed to identify residual stock that can be transferred to meet current contract requirements. After a vendor is selected, a purchase order (PO) is issued which commits the contractor to pay the negotiated price upon satisfactory delivery and acceptance of the item. POs should include all required

cost/schedule management system data so that the commitment and final payment can be identified to the cost account. After material is delivered to the contractor, it undergoes receiving inspection to ensure that there are no defects, and that the shipment is complete. The contractor's material control system should be capable of matching receiving inspection reports to a formal mechanism for authorizing payment to the vendor. Vendor invoices are used to accumulate actual material costs within a contractor's accounting system. After successful inspection, the material is either placed in storage for later use or directly issued to the user. If inspection shows material defects, material may be returned to the vendor for rework. This could result in a schedule variance, because the material was not accepted when planned, and a cost variance, because of additional contractor and/or vendor effort required to repair/rework the item.

G.5.b. Production. Material required in support of the production build schedule is normally tracked by the material requirements planning process. Whether automated or manual, this is the technique that the contractor uses to ensure that material is received, inspected and ready for issue in time to meet the factory need dates. POs are generated, usually for lot buys, and are priced based on vendor quotes or historical inventory pricing techniques. Available inventory quantities are checked to determine if the requirement can be met out of in-house assets. If not, then the PO is issued. Material is subsequently received and inspected for acceptability. Unlike R&D type material, the majority of production material goes into inventory and is issued to work-in-process based on the needs of the factory. Similar to R&D material, production material may be rejected on receipt and returned to the vendor for repair or replacement. This can not only cause both cost and schedule variances in the material cost accounts, but can also cause the manufacturing cost accounts to show like variances. Continuing interface between the two organizations is necessary to ensure good support in achieving program objectives.

G.6. Determining Material Earned Value. In general, earned value for both engineering and high-value production material should be determined discretely using objective milestones or other rational basis for measuring the amount of material work completed. It is important that most high dollar value material items are measured discretely.

The number of material items in a work package as well as the period over which they are delivered or used will influence selection of the earned value method. For example, a work package that is relatively short in duration and covers only one part or a single lot will likely use an earned value method where 100% of performance is claimed at completion. A work package covering several parts or multiple lots that is spread over several months would normally use either a percentage complete or interim milestone earned value technique.

Earned value for material can be credited at several points, none of which should be any earlier than the point of receipt. Earned value for high dollar value items may be claimed when they have successfully passed receiving inspection, provided they are placed into production within a reasonable time or are specifically identified to a serially numbered end item. Contractors may take credit for other material items when (1) they are received and inspected, (2) when they are placed in inventory, or, (3) when they are issued from inventory for use in an end item.

. **G.7. Material Cost Accounting.** Actual costs for material should be recorded in the contractor's accounting system in the same period that earned value is recorded in the management control system. Where actual costs are not available, estimated actuals may be used to maintain the integrity of the performance measurement data. These values will be adjusted to reflect true actuals when available. Actual cost for material includes all material included in the end item as well as scrap and rework, damaged items and any material bought for but not used for the contract.

In cases where contractors maintain inventory areas segregated by contract, actual costs to store the material will be charged to the contract when material is issued for use. All unused material should be returned to stores for disposition that may involve a write-off to scrap (debit to actual cost) or transfer to another contract (credit to actual cost).

A contractor's material accounting system should be able to match material receiving inspection reports to the original purchase order to authorize vendor payment. Actual costs for material drawn from inventory are generally charged to a contract at the time when they are drawn from inventory and are normally based on a moving average price of the items in stock. Common minor material may be charged to a contract by allocating monthly costs on a percentage based on a predetermined method. (See also D.4, Material Accounting.)

G.8. Material Variance Analysis. Material variance analysis, like variance analysis for other cost elements, should focus on significant deviations from the plan. However, it should also include analysis of progress in the attainment of critical hardware items. Schedule impact, not only to the material accounts, but also to other factory accounts that are being supported should be addressed along with actions that are being taken to improve and/or recover schedule. Cost variance analysis is focused on two aspects of material management: price variances and usage variances.

a. Material Price Variances. Price variances are determined early in the cycle of ordering materials by comparing budget amounts with PO values. Analysis of these variances focuses on identifying the impact on estimates of final cost. A material price variance also occurs whenever the price paid to a vendor is more or less than the budgeted price reflected on either the BOM or the PO. Material CAMs should be able to compare actual prices paid to vendors with budgeted material prices. This information is then used to evaluate/update the material estimate to complete. This will provide the earliest indication to management of potential contract cost impacts due to material procurement.

b. Material Usage Variance. The accounting system must plan and track the cost of material usage to include scrap, test rejections, and unanticipated test quantities. Current and projected usage variances must be analyzed to identify their potential impact on estimates of final cost. A material usage variance occurs whenever the amount of material actually used is more or less than the amount estimated in the BOM and reflected in the material budget. This is an important cost factor on repetitive, large volume production jobs, but is relatively insignificant on one-of-a-kind R&D equipment. Data to determine the total contract impact of a usage variance is normally not available until production is complete. Nevertheless, contractors should be able to track usage variances incrementally to provide an early warning of a usage variance problem before a production run is complete.

Budgeting for substantive unanticipated scrap may be accomplished using either of these two methods:

(1) MR being used to increase the budget for the replacement lot required due to a large percentage of scrap; or,

(2) Assigning negative BCWP in the current period to recognize BCWP which was previously overstated due to a large percentage of scrap.

Cost variances for common minor material may be caused by two factors: (1) a difference between the rate used to establish the budget and the rate at which material is actually consumed; or, (2) a difference between the manufacturing labor hours used to establish the rate and actual manufacturing labor hours charged to the contract. Actual manufacturing hours incurred should be compared to budgeted hours to determine if there are differences in the bases used to establish the budgeted and actual rates.

G.9. Estimating Material Costs at Completion. A material EAC is developed by adding material costs to date (the value of material issued to production plus the value of contract

material in inventory) to the estimated cost of material to complete the contract (purchase order commitment values). A material CAM should have adequate information on outstanding POs to develop realistic estimates to complete (ETCs). Also considered in material related ETCs should be such things as scrap/loss experience, configuration changes, alternate materials, realization projections for repair/rework, etc. Any price and usage variances to-date should also be considered and, if appropriate, factored into the material ETC.

In cases where design is not yet complete and POs have not been placed with vendors, BOM estimates should be used. Contractors should update BOM estimates based on any design changes that can impact the cost of purchasing the item.

H. Subcontract Management Process.

H.1 Introduction. Many times a significant portion of the prime contractor effort is performed by subcontractors. Subcontract arrangements are generally with other companies but may also include other organizational entities within the prime's corporation. For the purposes of this process description, the term "subcontractor" also refers to inter-divisional work; i.e., effort performed by another profit center within the prime contractor's parent organization. While purchased material items are “off-the-shelf” hardware, subcontracts generally involve one or more of the following elements: design and development, manufacturing effort, requirement to meet a performance specification, a statement of work, and substantial cost/schedule/technical risk. Regardless of the nature of the subcontract arrangement, the lack of direct line supervision and control over subcontract work by the prime increases the risk to the program and requires distinct procedures for performance management of subcontracts. The level of management required and techniques involved will be determined through the application of the criteria, C/SSR, or other subcontract management processes. The principles of the criteria provide for effective performance management and control of all subcontracts.

H.2. Subcontract integration. All subcontract effort must be integrated into the prime contractor's PMB. To accomplish this, all subcontract effort must be included in the prime CWBS. Major subcontracts will generally have a subcontract WBS that properly defines subcontracted work and is incorporated in the prime's CWBS. Since there may be more than one product or type of service supplied by subcontract, the subcontractor’s WBS reporting-level elements should not necessarily be aligned with the prime's CWBS reporting elements to the customer. For example, the subcontractor's reporting-level element for data will not feed into the prime's reporting element for data. Rather, all subcontractor reporting level elements must be incorporated in the prime's CWBS where appropriate. Responsibility for subcontract work must be clearly defined. Regardless of the prime's organizational approach for managing subcontracts, e.g., product teams, functional support teams, etc., the responsible CAM must have clearly defined authority and direct managerial responsibility for the subcontract effort.

Budgets allocated for subcontract effort must include subcontract fee and be revised to reflect results of negotiations, fee determination, and subcontract changes as applicable. Subcontract schedules and time-phased budget must be consistent with the program schedule and properly integrated into the prime's PMB. Subcontractor performance must be based on valid indicators of progress and measured consistent with the way work was planned. Actual costs for subcontracted effort must be reported in the same period as when the work is performed. Variances must be analyzed and realistic estimates of cost at completion must be generated for subcontracts.

H.3. Requirements. Subcontract management, control and visibility requirements should be tailored to the specific situation based on dollar value, design responsibility, contract type, duration, schedule and technical risk, lead time, and deliveries required. Major/critical

subcontractors will be selected for either compliance with the criteria or for application of the C/SSR. Chapter 2 of this guide discusses reporting thresholds and appropriate clauses for subcontracts. Compliance with C/SCSC or C/SSR is not required on subcontracts that are firm-fixed price (including firm-fixed price with economic price adjustment provisions or time and materials subcontracts), and subcontracts that consist of mostly LOE work or are of low value and/or short duration.

At a minimum, subcontract solicitations must include the appropriate provisions for cost and schedule control so they may be given adequate consideration in the proposal preparation and evaluation processes. Solicitations for major subcontracts must include the provisions for C/SCSC or C/SSR application, a time-phased budget plan and revisions as appropriate, cost/schedule performance reports (CPR or C/SSR), appropriate summary WBS, and summary subcontract schedules depicting status.

The subcontractor CPR or C/SSR submissions should be required in sufficient time to allow for incorporation into the prime's reporting of the same period. While not a mandatory requirement, every effort should be made to require electronic submission of reports and to incorporate subcontractor data on a "same month-end" basis; i.e. both the prime contractor and the subcontractor(s)' information in the prime's CPR is as of the same reporting period. This would eliminate the need for the prime to "lag" the subcontractor(s)' data by one accounting period to accommodate different cut-off dates. The electronic submission of subcontractor performance data to the prime facilitates this process.

Prime contractors should tailor reporting requirements to obtain minimum data needed to effectively manage the subcontract. Solicitations for non-major subcontracts should include data necessary for effective management such as progress reports, time-phased budget plan, progress payment schedules (when applicable) and reporting of actual cost.

H.4. Subcontracts with C/SCSC or C/SSR Requirements. When a subcontractor is required to comply with the criteria and provide a CPR, subcontractor data will be provided to the prime for performance measurement purposes. If the C/SSR is used, the subcontractor must establish procedures that implement the basic management disciplines and tie the planned and actual accomplishment of the subcontract effort to valid indicators of completed work.

The prime contractors will perform appropriate reviews of the subcontractor’s PMB and management control system according to the guidance provided in Chapters 5 and 7. While there are several organizational approaches for subcontract management (e.g., work teams, functional teams, etc.), the prime contractor CAM responsible for the subcontract must actively participate in these reviews to become familiar with the adequacy of the PMB, as well as the validity of the data reported.

Time-phased budgets for the subcontract effort will be established by the subcontractor and integrated into the prime's PMB at the cost account level. Where appropriate, the subcontractor’s CPR, C/SSR or time-phased budget plan should be used to accomplish this. Subcontractor MR, UB, and fee, must also be incorporated into the prime's PMB. The time-phased budget submitted by the subcontractor must be maintained and revised as necessary to reflect current baseline changes. The responsible CAM/management team will review the performance measurement data and variance analysis included in the subcontractor's monthly CPR or C/SSR for accuracy. Subcontract schedule milestones and activities must be directly traceable to and integrated with the prime's schedules and must also be consistent with the schedule performance reported in the subcontractor CPR or C/SSR. Subcontractor progress as reflected in reported earned value should be verified through such processes as progress payment request reconciliation, physical assessment of subcontractor progress and/or inputs from on-site contractor and/or government personnel. Questionable or erroneous data must

be identified to the subcontractor for correction and explained in the prime contractor's CPR or C/SSR variance analysis. To ensure that valid and accurate subcontract data is provided to the customer, it may be necessary for the prime contractor's CAM to correct the subcontract data to more accurately reflect cost and schedule performance in the prime's CPR or C/SSR.

The prime's procedures must also include a methodology for the continuous review and update of the estimated cost at completion for the subcontracted effort and assure integration into the prime's estimate. The rationale for subcontract estimates must be documented. The subcontractor(s)' estimates must be reviewed by the prime's CAM for accuracy and should be revised by the responsible CAM when a more accurate assessment of the subcontractor projected cost performance is needed. Differences between the reported subcontractor estimate and the CAM's assessment of subcontract cost at completion must be documented and explained in the prime's CPR variance analysis.

H.5. Subcontracts without C/SCSC or C/SSR Requirements. When a subcontract does not have either the C/SCSC and CPR or C/SSR requirements, planning and performance measurement are performed by the CAM instead of the subcontractor. The prime contractor's procedures must tie the planned and actual performance of the subcontractor to valid indicators for accomplishment. The time-phased budget plan (inclusive of subcontractor fee) will be established by the CAM and must be based on when the work is to be performed and must be aligned with the milestone schedules. Actual performance must be tied to valid indicators of progress such as measurable milestones or completion of identified work segments (except for level of effort subcontracts) and must be earned consistent with the way the time-phased budget was planned. Where subcontracts are planned as level of effort, accomplishment will be the same as the plan. Subcontract progress should be confirmed by the CAM through progress reports, subcontractor schedules showing status, telephone discussions or site visits.

To assure no distortion of performance because of lagging financial transactions, the actual cost should be reported in the same period as work performed. To accomplish this, estimated actuals should be used in place of recorded actuals to accommodate invoices not yet processed. Procedures must provide for the reconciliation of estimated actuals with actual subcontractor payments. The CAM shall perform monthly analysis, identify cost and schedule impacts and prepare variance analysis. A process for the monthly statusing of the estimate to complete and for generating or validating the subcontract comprehensive EAC will be in place to permit valid subcontract estimates of final cost.

APPENDIX E

INTEGRATED MANAGEMENT SYSTEMS EVALUATION GUIDE

This guide is designed to facilitate the evaluation of an integrated management system (IMS). It is divided into the same criteria groupings as the first section of Chapter 3: (1) Organizing; (2) Scheduling; (3) Work/Budget Authorization; (4) Accounting; (5) Indirect Management; (6) Managerial Analysis; (7) Change Incorporation; (8) Material Management; and, (9) Subcontract Management. The guidance contained in Chapter 3 will point the team member designated to evaluate any portion of the IMS towards acceptable processes. The mechanics of implementing any of these processes is at the discretion of the contractors. They should be allowed sufficient latitude within the criteria statement to implement an IMS acceptable to their internal organizations, provided they establish sufficient discipline and control to ensure that valid and timely information is available to all levels of management.

Each section of the evaluation guide contains (1) the Criterion being evaluated (with respect to the grouping); (2) suggested areas for the team member to review; (3) references to Chapter 3 criteria discussions; (4) the contractor's system description references, including program procedures where applicable; (5) documents to be reviewed and used as exhibits (if necessary); and, (6) the Evaluation Comments section where the team member will describe how the contractor demonstrated compliance with each criterion. As with previous version of Appendix E, the evaluation comments are not restricted to the amount of space provided. They should, however, be concise in their explanation of the system’s compliance.

Some criteria have been repeated in several of the sections of both Chapter 3 and Appendix E. It is important that the team member understand the "process" being reviewed against a particular criterion. For example, in the Organizing section of Appendix E, Criterion 2.e is cited. The intent is to answer that portion of 2.e that addresses the assignment of performing organizations to work packages. No other portion of 2.e should be evaluated here. The Work and Budget Planning section contains the remaining concepts associated with 2.e. Additionally, the Material Management and Subcontract Management sections of Appendix E contain 2.e. The intent here is to address the uniqueness of work package planning associated with these two processes. Table E-1 is a matrix that shows where each criterion is included in the various sections of Appendix E

CRITERIA/PROCESS MATRIX

CRITERIA SECTION	PROCESS GROUPING								
ORGANIZATION	ORGANIZING	SCHEDULING	WORK/BUDGET AUTHORIZATION	ACCOUNTING	INDIRECT MANAGEMENT	MANAGERIAL ANALYSIS	REVISIONS	MATERIAL MANAGEMENT	SUBCONTRACT MANAGEMENT
1.a	X								X
1.b	X								
1.c	X				X				
1.d									
1.e	X								
PLANNING & BUDGETING									
2.a		X							
2.b		X							
2.c			X		X				X
2.d	X		X					X	X
2.e	X		X					X	
2.f			X						
2.g			X						X
2.h			X					X	
2.i					X				
2.j			X						
2.k			X						
ACCOUNTING									
3.a				X					X
3.b				X					
3.c				X					
3.d					X				
3.e			X	X					
3.f				X					
3.g								X	
ANALYSIS									
4.a	X		X	X		X		X	X
4.b					X				
4.c						X			
4.d		X							
4.e						X			
4.f	X				X	X		X	X
REVISIONS									
5.a							X		
5.b							X		
5.c				X			X		
5.d							X		
5.e							X		
5.f.	X								

INTEGRATED MANAGEMENT SYSTEM EVALUATION GUIDE

ORGANIZING GROUP

1.a. DEFINE ALL THE AUTHORIZED WORK AND RELATED RESOURCES TO MEET THE REQUIREMENTS OF THE CONTRACT, USING THE FRAMEWORK OF THE CWBS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-1, para 3-2.a., Organizing the work.	

AREAS TO EXAMINE

1. Cross-check the SOW paragraphs to the CWBS and CWBS dictionary (if applicable), or to the work authorization documents.

2. Use the results of manager interviews to verify the technical content of authorized work.

DOCUMENTS

CWBS and CWBS Dictionary, if applicable; Contract Statement of Work; Work authorizations; Results of interviews

EVALUATION COMMENTS:

1.b. IDENTIFY THE INTERNAL ORGANIZATIONAL ELEMENTS AND THE MAJOR SUBCONTRACTORS RESPONSIBLE FOR ACCOMPLISHING THE AUTHORIZED WORK.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-2, para 3-2.b., Assigning organizational responsibility.	

AREAS TO EXAMINE

1. Review the program organization chart, the CWBS (and CWBS Dictionary, if applicable), and the Responsibility Assignment Matrix (RAM).

2. Ensure that major subcontractors are identified to the appropriate scope of work.

DOCUMENTS

RAM, Format 8; CWBS and CWBS Dictionary (if applicable); Contractor organization charts

EVALUATION COMMENTS:

1.c. PROVIDE FOR THE INTEGRATION OF THE CONTRACTOR'S PLANNING, SCHEDULING, BUDGETING, WORK AUTHORIZATION, AND COST ACCUMULATION SYSTEMS WITH EACH OTHER, THE CWBS, AND THE ORGANIZATIONAL STRUCTURE.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-2, para 3-2.c. Ensure management subsystems integration with the CWBS and the Organization.	

AREAS TO EXAMINE

1. Trace the information on Format 1 to the source document(s).

2. Using the internal performance measurement reports, verify the integration of schedule dates, budget values and responsible organizations.

3. Sample several cost accounts to verify consistent integration across the contract.

DOCUMENTS

Formats 1, 10 and 11; Internal performance measurement reports.

EVALUATION COMMENTS:

1.e. PROVIDE FOR INTEGRATION OF THE CWBS WITH THE CONTRACTOR'S FUNCTIONAL ORGANIZATIONAL STRUCTURE IN A MANNER THAT PERMITS COST AND SCHEDULE PERFORMANCE MEASUREMENT FOR CWBS AND ORGANIZATIONAL ELEMENTS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-2, para 3-2.d., Organize for effective performance measurement.	

AREAS TO EXAMINE

1. Select several intersections (cost accounts) from the Responsibility Assignment Matrix (RAM).

2. Review internal performance measurement reports for the selected cost accounts.

3. Verify all cost accounts are assigned to an appropriate organizational level and a correct CWBS element, and determine that BCWS, BCWP and ACWP are available at the cost account.

4. When applicable, ensure the CWBS is compatible with the product manufacturing breakdown structure for data accumulation.

DOCUMENTS

RAM, Format 8; Internal performance measurement reports; Manufacturing breakdown structure (if applicable); CWBS.

EVALUATION COMMENTS:

2.d. ESTABLISH BUDGETS FOR ALL AUTHORIZED WORK WITH SEPARATE IDENTIFICATION OF COST ELEMENTS (LABOR, MATERIAL, ETC.).

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-2, para 3-2.e., Authorize responsible organizations to proceed with work.	

AREAS TO EXAMINE

1. Review Format 11 and verify the program manager has authorization to proceed with the work and expend resources.

2. Verify organizational elements, if appropriate, have been authorized to proceed.

DOCUMENTS

Format 11; Work authorization documents for organizational elements.

EVALUATION COMMENTS:

2.e. TO THE EXTENT AUTHORIZED WORK CAN BE IDENTIFIED IN DISCRETE. SHORT-SPAN WORK PACKAGES, ESTABLISH BUDGETS FOR THIS WORK IN TERMS OF DOLLARS, HOURS, OR OTHER MEASURABLE UNITS. WHERE THE ENTIRE COST ACCOUNT CANNOT BE SUBDIVIDED INTO DETAILED WORK PACKAGES, IDENTIFY THE FAR TERM EFFORT IN LARGER PLANNING PACKAGES FOR BUDGETING AND SCHEDULING PURPOSES:

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-3, para 3-2.f., Assignment of performing organizations.	

AREAS TO EXAMINE

1. Determine, by reviewing a sample of cost account plans, that work packages have been assigned to performing organizations.

DOCUMENTS

Cost account plans

EVALUATION COMMENTS:

4.a. IDENTIFY AT THE COST ACCOUNT LEVEL ON A MONTHLY BASIS USING DATA FROM, OR RECONCILABLE WITH, THE ACCOUNTING SYSTEM; COMPARISON OF BCWS AND BCWP; COMPARISON OF BCWP AND APPLIED (ACTUAL WHERE APPROPRIATE) DIRECT COSTS FOR THE SAME WORK; AND VARIANCES RESULTING FROM THE ABOVE COMPARISONS CLASSIFIED IN TERMS OF LABOR, MATERIAL, OR OTHER APPROPRIATE ELEMENTS, TOGETHER WITH THE REASONS FOR SIGNIFICANT VARIANCES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-3, para 3-2.g., Establish management responsibility for corrective actions.	

AREAS TO EXAMINE

1. During manager interviews, determine whether managers have authority commensurate with their responsibility to perform the work.

2. Determine whether the manager has control of assigned resources (ability to prioritize work) and can implement corrective actions to resolve cost and schedule performance problems.

DOCUMENTS

Manager interview results

EVALUATION COMMENTS:

4.f. BASED ON PERFORMANCE TO DATE, ON COMMITMENT VALUES FOR MATERIAL, AND ON ESTIMATES OF FUTURE CONDITIONS, DEVELOP REVISED ESTIMATES OF COST AT COMPLETION FOR WBS ELEMENTS IDENTIFIED IN THE CONTRACT AND COMPARE THESE WITH THE CONTRACT BUDGET BASE AND THE LATEST STATEMENT OF FUNDS REQUIREMENTS REPORT TO THE GOVERNMENT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-3, para 3-2.h. Establish organizational responsibility for resource allocations.	

AREAS TO EXAMINE

1. Verify the procedures for generating comprehensive EACs include a requirement to coordinate resource requirements with the providing organization.

DOCUMENTS

System description; EAC procedure; Results of intermediate level manager interviews

EVALUATION COMMENTS:

SCHEDULING GROUP

2.a. SCHEDULE THE AUTHORIZED WORK IN A MANNER WHICH DESCRIBES THE SEQUENCE OF WORK AND IDENTIFIES THE SIGNIFICANT TASK INTERDEPENDENCIES REQUIRED TO MEET THE DEVELOPMENT, PRODUCTION, AND DELIVERY REQUIREMENTS OF THE CONTRACT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-3, para 3-3.a. Structuring schedules for program management.	

AREAS TO EXAMINE

1. Review Format 10 to ensure the scheduling system contains a program master schedule that reflects contractual requirements, significant decision points, and key program milestones.

2. Verify the start and completion dates of subordinate schedules provide a logical link from the level where work is being performed to the program master schedule (vertical traceability).

3. Verify, at the level selected by the contractor, significant organizational and/or product-oriented interdependencies have been identified in support of completion of contractual effort (horizontal traceability).

DOCUMENTS

Format 10, Schedule Trace; Program Schedules

EVALUATION COMMENTS:

2.b. IDENTIFY PHYSICAL PRODUCTS, MILESTONES, TECHNICAL PERFORMANCE GOALS, OR OTHER INDICATORS THAT WILL BE USED TO MEASURE OUTPUT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-4, para 3-3.b., Incorporate meaningful progress indicators.	

AREAS TO EXAMINE

1. Confirm the contractor has identified and is using meaningful indicators to measure actual progress at the work package level.

2. Verify the lower level indicators accurately form the basis for measuring higher level schedule status.

DOCUMENTS

Format 10, Schedule Trace; Program Schedules; Manager Interview Results

EVALUATION COMMENTS:

4.d. IDENTIFY ON A MONTHLY BASIS SIGNIFICANT DIFFERENCES BETWEEN PLANNED AND ACTUAL SCHEDULE ACCOMPLISHMENT TOGETHER WITH THE REASONS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-4, para 3-3.c., Evaluate deviations from the baseline plan.	

AREAS TO EXAMINE

1. Verify the status shown on the program schedules correlates to internal performance measurement information and represents physical progress.

2. Review the contractor's analysis of differences between the schedule baseline plan and actual accomplishment and verify contractor's analysis clearly identifies the reasons for the differences.

DOCUMENTS

Format 10; Schedule Trace; Schedule variance analysis documents

EVALUATION COMMENTS:

WORK/BUDGET AUTHORIZATION GROUP

2.c. ESTABLISH AND MAINTAIN A TIME-PHASED BUDGET BASELINE AT THE COST ACCOUNT LEVEL AGAINST WHICH CONTRACT PERFORMANCE CAN BE MEASURED. INITIAL BUDGETS ESTABLISHED FOR THIS PURPOSE WILL BE BASED ON THE NEGOTIATED TARGET COST. ANY OTHER AMOUNT USED FOR PERFORMANCE MEASUREMENT PURPOSES MUST BE FORMALLY RECOGNIZED BY BOTH THE CONTRACTOR AND THE GOVERNMENT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-6, para 3-4.a., Establishment and maintenance of the Performance Measurement Baseline (PMB).	

AREAS TO EXAMINE

1. Determine the performance measurement baseline consists of: a) time-phased cost account budgets, b) summary level planning budgets where budgets have not yet been broken down into cost account budgets, and c) undistributed budget, if any.

2. Depending on the program phase (e.g. development or production) and the contractor's knowledge of future conditions (e.g. design maturity, funding levels), verify the entire contract budget (including authorized unpriced work) has been planned in time-phased cost accounts or Summary Effort Control points (SECPs).

3. Verify the contractor has procedures defined which provide for the implementation of a Total Allocated Budget in excess of the CBB.

DOCUMENTS

Cost account plan; work authorizations; summary planning documentation; internal time-phased baseline documents; Formats 2 & 3

EVALUATION COMMENTS:

2.d. ESTABLISH BUDGETS FOR ALL AUTHORIZED WORK WITH SEPARATE IDENTIFICATION OF COST ELEMENTS (LABOR, MATERIAL, ETC.).

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-8, para 3-4.b., Authorizing work and budgets to the responsible organizations.	

AREAS TO EXAMINE

1. Verify the budgets assigned to cost accounts for the performance of authorized work are planned and appropriately identified in terms of direct labor hours, and/or dollars or ODC.

2. Verify cost accounts are opened and closed based on the planned start and actual completion dates of the effort contained therein.

DOCUMENTS

Cost account plans; work/budget authorizations; program schedules; Format 2

EVALUATION COMMENTS:

2.e. TO THE EXTENT AUTHORIZED WORK CAN BE IDENTIFIED IN DISCRETE. SHORT-SPAN WORK PACKAGES, ESTABLISH BUDGETS FOR THIS WORK IN TERMS OF DOLLARS, HOURS, OR OTHER MEASURABLE UNITS. WHERE THE ENTIRE COST ACCOUNT CANNOT BE SUBDIVIDED INTO DETAILED WORK PACKAGES, IDENTIFY THE FAR TERM EFFORT IN LARGER PLANNING PACKAGES FOR BUDGETING AND SCHEDULING PURPOSES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-9, para 3-4.c., Define the cost account effort into work packages and planning packages.	

AREAS TO EXAMINE

1. Verify work packages reflect the actual way in which the work will be performed, contain adequate objective indicators/milestones to minimize subjectivity, and they are meaningful products or management-oriented subdivisions of a higher level element of work (cost account).

2. Confirm detailed work packages are planned as far in advance as practicable.

3. Determine whether future work which cannot be planned in detail is subdivided, budgeted and scheduled to the extent practicable.

4. Confirm the contractor can substantiate work package and planning package budgets in terms of dollars, hours, or other measurable units.

DOCUMENTS

Cost account plans, manager interview results, work authorization documents, and schedules, Format 9

EVALUATION COMMENTS:

2.f. PROVIDE THAT THE SUM OF ALL WORK PACKAGE BUDGETS PLUS PLANNING PACKAGES BUDGETS WITHIN A COST ACCOUNT EQUALS THE COST ACCOUNT BUDGET.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-10, para 3-4.d., Verification of Cost Account Budgets.	

AREAS TO EXAMINE

1. Using Format 2, determine the sum of all work package budgets and planning package budgets within cost accounts equals the total budget assigned to the cost account.

2. Compare Format 2 data to the internal source documents.

3. Review a selected sample of other cost accounts.

DOCUMENTS

Format 2, Internal Performance Measurement documents

EVALUATION COMMENTS:

2.g. IDENTIFY RELATIONSHIPS OF BUDGETS OR STANDARDS IN UNDERLYING WORK AUTHORIZATION SYSTEMS TO BUDGETS FOR WORK PACKAGES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-10, para 3-4.e., Tie work package budgets to information in supporting systems.	

AREAS TO EXAMINE

1. Compare time-phased BCWS from manufacturing cost accounts to standard-based information from the internal factory planning process and show how the relationship is established and maintained.

2. Verify learning was included in establishing time-phased budgets.

DOCUMENTS

Manufacturing Cost Account Plans, Internal Factory Standards Planning documents, Internal BCWS reports

EVALUATION COMMENTS:

2.h. IDENTIFY AND CONTROL LEVEL OF EFFORT ACTIVITY BY TIME-PHASED BUDGETS ESTABLISHED FOR THIS PURPOSE. ONLY THAT EFFORT WHICH CANNOT BE IDENTIFIED AS DISCRETE, SHORT SPAN WORK PACKAGES OR AS APPORTIONED EFFORT MAY BE CLASSED AS LOE.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-11, para 3-4.f., Planning and control of apportioned and level-of-effort activities.	

AREAS TO EXAMINE

1. Using assessments by technical personnel, determine effort is properly classified as measured effort, LOE or apportioned, and the types of effort are appropriately separated.

2. Review Format 9 to evaluate the amount of LOE and apportioned effort in the baseline is acceptable for the type of contract (R&D or Prod.).

3. Verify discrete and LOE have not been commingled to the extent performance measurement data is distorted.

DOCUMENTS

Manager interview results, Format 9, Cost Account Plans

EVALUATION COMMENTS:

2.j. IDENTIFY MANAGEMENT RESERVES AND UNDISTRIBUTED BUDGET.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-11, para 3-4.g., Establish and track management reserve and undistributed budget.	

AREAS TO EXAMINE

1. Confirm all budget available as MR is identified and excluded from the PMB.

2. Determine records are maintained to show how MR is used.

3. Verify UB is limited to effort cannot be planned in cost accounts or SECPs.

4. Confirm records are maintained to show how UB is controlled.

DOCUMENTS

Budget records (including MR and UB records)

EVALUATION COMMENTS:

2.k. PROVIDE THE CONTRACT TARGET COST PLUS THE ESTIMATED COST OF AUTHORIZED BUT UNPRICED WORK IS RECONCILED WITH THE SUM OF ALL INTERNAL CONTRACT BUDGETS AND MANAGEMENT RESERVES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-12, para 3-4.h., Reconcile budget values to contract cost.	

AREAS TO EXAMINE

1. Verify current contractual value (including authorized, unpriced work).

2. Reconcile this value to the total budget at completion (column 14 of Format 1 of the CPR).

3. Reconcile the total budget at completion from column 14 of the CPR, Format 1, to the Budget Log and the internal performance measurement report at the total contract level and the contractor's program level work authorization document.

DOCUMENTS

Budget Log, CPR Format 1, Contractual instruments

EVALUATION COMMENTS:

3.e. IDENTIFY THE BASIS FOR LOCATING THE COST OF APPORTIONED EFFORT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-13, para 3-4.I., Budget apportioned effort as it will be allocated.	

AREAS TO EXAMINE

1. Determine, through sampling, effort planned and controlled in direct relationship to discrete effort is appropriately identified as apportioned effort.

2. Verify the relationship between the discrete effort and apportioned effort is consistent throughout the period of performance of the affected cost accounts.

DOCUMENTS

Cost Account Plans, Format 9

EVALUATION COMMENTS:

4.a. IDENTIFY AT THE COST ACCOUNT LEVEL ON A MONTHLY BASIS USING DATA FROM, OR RECONCILABLE WITH, THE ACCOUNTING SYSTEM; COMPARISON OF BCWS AND BCWP; COMPARISON OF BCWP AND APPLIED (ACTUAL WHERE APPROPRIATE) DIRECT COSTS FOR THE SAME WORK; AND VARIANCES RESULTING FROM THE ABOVE COMPARISONS CLASSIFIED IN TERMS OF LABOR, MATERIAL, OR OTHER APPROPRIATE ELEMENTS, TOGETHER WITH THE REASONS FOR SIGNIFICANT VARIANCES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-13, para 3-4.j., Accumulate BCWP the same way BCWS was established.	

AREAS TO EXAMINE

1. Determine the BCWP will be calculated using the same basis as for BCWS planning and the manager selected the most appropriate earned value technique.

DOCUMENTS

Cost Account Plans

EVALUATION COMMENTS:

ACCOUNTING GROUP

3.a. RECORD DIRECT COSTS ON AN APPLIED OR OTHER ACCEPTABLE BASIS IN A MANNER CONSISTENT WITH THE BUDGETS IN A FORMAL SYSTEM THAT IS CONTROLLED BY THE GENERAL BOOKS OF ACCOUNT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-13, para 3-5.a., Establish an accounting system interface with the integrated mangement system.	

AREAS TO EXAMINE

1. Determine whether the contractor's accounting system provides a basis for auditing records of all direct costs that can be charged to the contract.

2. Confirm the contractor uses accounting procedures in accordance with recognized acceptable costing techniques controlled by the general books of account.

3. Confirm the accounting system collects actual direct costs by element of cost (labor, material, etc.) and assigns these costs to cost accounts on the same basis budgets were established.

DOCUMENTS

Generally Acceptable Accounting Procedures (GAAP), Contractor's accounting manual, Disclosure statement

EVALUATION COMMENTS:

3.b. SUMMARIZE DIRECT COSTS FROM THE COST ACCOUNTS INTO THE WBS WITHOUT ALLOCATION OF A SINGLE COST ACCOUNT TO TWO OR MORE WBS ELEMENTS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-14, para 3-5.b., Ensure accurate summarization through the WBS.	

AREAS TO EXAMINE

1. Trace actual costs reported in Format 2 to source documents (time cards, purchase orders, etc.).

2. Trace the verified actual costs reported in Format 2 through the CWBS via Format 5 to the total contract level, CPR Format 1.

3. Confirm this summarization by tracing a sample of cost account actuals from the source documents through other legs of the CWBS.

DOCUMENTS

Formats 2 and 3, Internal performance measurement reports, CPR, CWBS

EVALUATION COMMENTS:

3.c. SUMMARIZE DIRECT COSTS FROM THE COST ACCOUNTS INTO THE CONTRACTOR'S FUNCTIONAL ORGANIZATIONAL ELEMENTS WITHOUT ALLOCATION OF A SINGLE COST ACCOUNT TO TWO OR MORE ORGANIZATIONAL ELEMENTS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-14, para 3-5.c., Ensure accurate summarization through the OBS.	

AREAS TO EXAMINE

1. Trace actual costs reported in Format 2 to the source documents (time cards, purchase orders, etc.). This step was competed for Criteria Item 3.b.

2. Trace the verified actual costs reported in Format 2 through the contractor's functional organization via the Format 4 through the total contract level, CPR Format 2.

3. Confirm the summarization by tracing a sample of other cost account elements of actual cost from the source document through the OBS to the total contract level.

DOCUMENTS

Formats 2 and 4, Internal performance measurement reports, OBS, CPR

EVALUATION COMMENTS:

3.e. IDENTIFY THE BASIS FOR ALLOCATING THE COST OF APPORTIONED EFFORT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-14, para 3-5.d., Establish a capability to track costs for apportioned effort.	

AREAS TO EXAMINE

1. In conjunction with the review of Criteria Item 3.a., verify actual costs for efforts identified as apportioned are accurately accumulated in the accounting system and are assigned/allocated to cost accounts on the same basis budgets were established.

2. Verify costs charged to the contract for apportioned effort are the actual costs incurred and are not factored off of the base.

DOCUMENTS

Internal performance measurement reports

EVALUATION COMMENTS:

3.f. IDENTIFY UNIT COSTS, EQUIVALENT UNIT COSTS, OR LOT COSTS AS APPLICABLE.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-14, para 3-5.e., Unit/Lot costs must be identifiable.	

AREAS TO EXAMINE

1. Confirm the contractor's accounting system can accumulate actual by unit or lot, as appropriate. The contractor's system must be able to identify unit and lot costs in terms of labor, material, other direct charges, and indirect cost.

2. Confirm the contractor's accounting system can separate actual costs into recurring and non-recurring categories.

DOCUMENTS

Charge number structure, Contract CDRLs, Accounting manual

EVALUATION COMMENTS:

4.a. IDENTIFY AT THE COST ACCOUNT LEVEL ON A MONTHLY BASIS USING DATA FROM, OR RECONCILABLE WITH, THE ACCOUNTING SYSTEM; COMPARISON OF BCWS AND BCWP; COMPARISON OF BCWP AND APPLIED (ACTUAL WHERE APPROPRIATE) DIRECT COSTS FOR THE SAME WORK; AND VARIANCES RESULTING FROM THE ABOVE COMPARISONS CLASSIFIED IN TERMS OF LABOR, MATERIAL, OR OTHER APPROPRIATE ELEMENTS, TOGETHER WITH THE REASONS FOR SIGNIFICANT VARIANCES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-14, para 3-5.f., Use accounting system actuals for variance analysis.	

AREAS TO EXAMINE

1. Verify actual cost information reported in the internal variance analysis documents is derived from data collected within the accounting system.

DOCUMENTS

Internal performance reports, Variance analysis documents, Accounting system data

EVALUATION COMMENTS:

5.c. PROHIBIT RETROACTIVE CHANGES TO RECORDS PERTAINING TO WORK PERFORMED WILL CHANGE PREVIOUSLY REPORTED AMOUNTS FOR DIRECT COSTS, INDIRECT COSTS, OR BUDGETS, EXCEPT FOR CORRECTION OF ERRORS AND ROUTINE ACCOUNTING ADJUSTMENTS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-15, para 3-5.g., Control retroactive changes to actual costs.	

AREAS TO EXAMINE

1. Review accounting procedures to confirm retroactive adjustments to actual direct and indirect costs incurred (ACWP) are controlled.

2. Review several journal entries to determine if retroactive changes to ACWP are limited to correction of errors and/or routine accounting adjustments.

DOCUMENTS

Journal vouchers, Accounting manual

EVALUATION COMMENTS:

INDIRECT MANAGEMENT GROUP

1.d. IDENTIFY THE MANAGERIAL POSITIONS RESPONSIBLE FOR CONTROLLING OVERHEAD (INDIRECT COSTS).

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-15, para 3-6.a., Assign managerial responsiblity for Indirect Cost.	

AREAS TO EXAMINE

1. Review the contractor's organizational structure and determine whether organizational elements and/or managerial positions responsible for establishing indirect budgets and incurring and controlling indirect budgets are clearly identified.

2. For those elements and/or positions identified above, confirm the responsibilities and authorities for (a) the establishment of budgets, (b) expenditure of overhead resources, and, (c) control of overhead performance are clearly described in an established procedure.

DOCUMENTS

Organization charts, Overhead budgeting policies and procedures manual

EVALUATION COMMENTS:

2.c. ESTABLISH AND MAINTAIN A TIME-PHASED BUDGET BASELINE AT THE COST ACCOUNT LEVEL AGAINST WHICH CONTRACT PERFORMANCE CAN BE MEASURED. INITIAL BUDGETS ESTABLISHED FOR THIS PURPOSE WILL BE BASED ON THE NEGOTIATED TARGET COST. ANY OTHER AMOUNT USED FOR PERFORMANCE MEASUREMENT PURPOSES MUST BE FORMALLY RECOGNIZED BY BOTH THE CONTRACTOR AND THE GOVERNMENT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-15, para 3-6.b., Include indirect budgets in the PMB.	

AREAS TO EXAMINE

1. Determine the performance measurement baseline contains budgets for indirect costs.

2. If indirect budgets are not assigned to cost accounts, verify the level of assignment and the process of allocation to the contract.

DOCUMENTS

Cost account plan, summary planning documentation, internal time-phased baseline documents, Formats 2 & 3

EVALUATION COMMENTS:

2.i. ESTABLISH OVERHEAD BUDGETS FOR THE TOTAL COSTS OF EACH SIGNIFICANT ORGANIZATIONAL COMPONENT WHOSE EXPENSES WILL BECOME INDIRECT COSTS. REFLECT IN THE CONTRACT BUDGETS AT THE APPROPRIATE LEVEL, THE AMOUNTS IN OVERHEAD POOLS THAT WILL BE ALLOCATED TO THE CONTRACT AS INDIRECT COSTS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-15, para 3-6.c., Correlate indirect budgets with contract activities.	

AREAS TO EXAMINE

1. Verify a rational, traceable budgeting process has been established that will allocate projected indirect costs to contracts by the CWBS and by organizational levels.

2. Verify budgets have been established for each organization which has authority to incur indirect costs (as described in 1.d).

3. Determine whether the contractor has filed an adequate CAS Disclosure Statement, and if there are any outstanding CAS non-compliance that impact on indirect costs. Verify that: (a) budgeted indirect expenses are classified in accordance with the disclosure statement or written accounting procedures (if otherwise applicable), and (b) overhead pools are clearly described including the organizations and each item of cost assigned to each overhead pool, and each element of expense is clearly described.

4. Determine whether overhead projections are established: (a) at least annually and far enough in the future to cover the contractual period of performance, and (b) on a basis consistent with the anticipated direct business base which was projected in a rational and consistent manner using the most current information available.

5. Determine whether projected indirect rates are adjusted in a timely manner to reflect changes in (a) the current or projected base, (b) the level of overhead expenditures, and (c) the overhead structure. Verify the latest projected overhead rates are used in the Cost/Schedule system.

DOCUMENTS

Format 7, DCAAM 7640.1, FAR 31.203, Organization Charts, CAS Disclosure Statement, Contractor's Overhead Policies and Procedures

EVALUATION COMMENTS:

3.d. RECORD ALL INDIRECT COSTS WHICH WILL BE ALLOCATED TO THE CONTRACT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-16, para 3-6.d., Collect actual indirect costs for allocation to individual contracts.	

AREAS TO EXAMINE

1. Determine whether the contractor's accounting system provides for the summarization of indirect costs from the point of allocation (as determined in 2.i.) through the CWBS and OBS to the total contract level.

2. Verify the actual indirect costs are being recorded in accordance with the contractor's CAS Disclosure Statement or with Generally Accepted Accounting Principles (as applicable) by determining if there are any outstanding CAS non-compliance or accounting system deficiencies impacting on indirect costs. The accounting system should ensure: (a) indirect costs are accumulated in the same manner as corresponding budgets, (b) indirect costs are charged to the appropriate indirect pools and identified to incurring organizations (as defined in (2.i.), (c) indirect costs are consistently applied, especially between cost reimbursement and other contract types or between government and commercial contracts, and (d) indirect bases provide for equitable distribution of indirect cost based on a casual/beneficial relationship.

3. Determine whether the overhead rates are updated frequently enough to ensure a realistic monthly allocation of indirect costs without significant year end adjustments.

DOCUMENTS

CASB Disclosure Statement; DCAA Audit Reports, Organization Charts; Accounting Manual

EVALUATION COMMENTS:

4.b. IDENTIFY ON A MONTHLY BASIS, IN THE DETAIL NEEDED BY MANAGEMENT FOR EFFECTIVE CONTROL, BUDGETED INDIRECT COSTS, ACTUAL INDIRECT COSTS, AND COST VARIANCES, WITH THE REASONS FOR SIGNIFICANT VARIANCES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-16, para 3-6.e., Analyze idirect variances.	

AREAS TO EXAMINE

1. Verify a process exists and is implemented to analyze indirect costs against the budgets established for those costs, and management action is taken to address significant variances.

2. Confirm the analysis of variances can be isolated to base changes, versus volume changes.

3. Confirm indirect variances are recorded by element of expense.

DOCUMENTS

Format 7
Overhead budgeting policies and procedures

EVALUATION COMMENTS:

4.f. BASED ON PERFORMANCE TO DATE, ON COMMITMENT VALUES FOR MATERIAL, AND ON ESTIMATES OF FUTURE CONDITIONS, DEVELOP REVISED ESTIMATES OF COST AT COMPLETION FOR WBS ELEMENTS IDENTIFIED IN THE CONTRACT AND COMPARE THESE WITH THE CONTRACT BUDGET BASE AND THE LATEST STATEMENT OF FUNDS REQUIREMENTS REPORT TO THE GOVERNMENT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-16, para 3-6.f., Ensure most accurate rates are used to project indirect costs.	

AREAS TO EXAMINE

1. Determine rates used to calculate the overhead portion of the estimate at completion are based on:
   - historical experience;
   - contemplated management improvements;
   - projected economic escalation;
   - anticipated business volume.

DOCUMENTS

Rate tables for EAC valuation, Supporting rationale for projected rates

EVALUATION COMMENTS:

MANAGEMENT ANALYSIS GROUP

4.a. IDENTIFY AT THE COST ACCOUNT LEVEL ON A MONTHLY BASIS USING DATA FROM, OR RECONCILABLE WITH, THE ACCOUNTING SYSTEM; COMPARISON OF BCWS AND BCWP; COMPARISON OF BCWP AND APPLIED (ACTUAL WHERE APPROPRIATE) DIRECT COSTS FOR THE SAME WORK; AND VARIANCES RESULTING FROM THE ABOVE COMPARISONS CLASSIFIED IN TERMS OF LABOR, MATERIAL, OR OTHER APPROPRIATE ELEMENTS, TOGETHER WITH THE REASONS FOR SIGNIFICANT VARIANCES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-17, para 3-7.a., Analyze significant variances at the cost account level.	

AREAS TO EXAMINE

1. Verify the contractor has variance analysis procedures and a demonstrated capability to identify and isolate the causes of favorable and unfavorable cost and schedule variances.

2. Review a selected sample of information related to the analysis of significant cost account level variances.

3. Use the results of manager interviews to verify the proper implementation of variance analysis procedures.

DOCUMENTS

Variance analysis supporting documentation, Results of manager interviews

EVALUATION COMMENTS:

4.c. SUMMARIZE THE DATA ELEMENTS AND ASSOCIATED VARIANCES LISTED IN ITEMS 1 AND 2 ABOVE THROUGH THE CONTRACTOR ORGANIZATION AND WBS TO THE REPORTING LEVEL SPECIFIED IN THE CONTRACT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 4-18, para 3-7.b., Summarize performance data for mid-level management evaluation.	

AREAS TO EXAMINE

1. Verify BCWS, BCWP and ACWP and the associated variances are accurately summarized up through both the CWBS and the contractor's organization. Use Formats 3, 4, 5, and 6 to accomplish this data verification.

2. Ensure variance analysis for CWBS and organizations at levels above the cost account is performed on at least a monthly basis.

DOCUMENTS

Formats 3, 4, 5 and 6, Variance analysis procedures, Variance analysis supporting documentation

EVALUATION COMMENTS:

4.e. IDENTIFY MANAGERIAL ACTIONS TAKEN AS A RESULT OF CRITERIA ITEMS 1 THROUGH 4 ABOVE

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-19, para 3-7.c., Take effective management action as a result of analysis.	

AREAS TO EXAMINE

1. Verify managers at the intermediate and program levels are involved in the analysis of performance measurement data.

2. Confirm corrective actions are initiated at the appropriate level and tracked to resolution.

3. Verify management data being used in this process is generated in a timely manner and is accurate.

4. Review the management process leads to the resolution of data discrepancies in a timely manner.

5. Confirm the results of the earned value based, integrated management process, including corrective action resolution, are communicated to the customer in status reviews and external reports.

DOCUMENTS

Internal data reports, Action item lists, Program status review documents, CPR

EVALUATION COMMENTS:

4.f. BASED ON PERFORMANCE TO DATE, ON COMMITMENT VALUES FOR MATERIAL, AND ON ESTIMATES OF FUTURE CONDITIONS, DEVELOP REVISED ESTIMATES OF COST AT COMPLETION FOR WBS ELEMENTS IDENTIFIED IN THE CONTRACT AND COMPARE THESE WITH THE CONTRACT BUDGET BASE AND THE LATEST STATEMENT OF FUNDS REQUIREMENTS REPORT TO THE GOVERNMENT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-19, para 3-7.d., Generate periodic estimates of final cost.	

AREAS TO EXAMINE

1. Verify estimates of costs at completion are based on:
   - Actual costs to date;
   - Commitment values for material items (if applicable);
   - Performance to date;
   - Knowledgeable projections of future performance;
   - Estimates of economic escalation.

2. Confirm the estimates developed by program personnel are coordinated with those who have the authority for resource allocation.

3. Verify managers are updating the ETC at least monthly; i.e., evaluating the reasonableness of the time-phased resources for the remaining effort.

4. Verify program risk and potential cost avoidance items are being assessed, and their impact on contract cost estimates are being communicated to the customer in program status reviews and/or external reports.

5. Determine the current estimates of costs at completion are compared with budgets at appropriate levels, and the causes of variances are identified.

6. Confirm EACs are generated in a rational, consistent manner, and there are procedures established requiring monthly updates and annual comprehensive estimates, at a minimum, or more often if program needs dictate.

7. Reconcile the EAC reported on the CPR with the estimate of net funds required reported on the CFSR (ensure the report dates are the same).

DOCUMENTS

Formats 3 and 4, Cost Performance Report, Internal performance measurement reports, EAC Supporting documentation

EVALUATION COMMENTS:

CHANGE INCORPORATION GROUP

5.a. INCORPORATE CONTRACTUAL CHANGES IN A TIMELY MANNER, RECORDING THE EFFECTS OF SUCH CHANGES IN BUDGETS AND SCHEDULES. IN THE DIRECTED EFFORT BEFORE NEGOTIATION OF A CHANGE, BASE SUCH REVISIONS ON THE AMOUNT ESTIMATED AND BUDGETED TO THE FUNCTIONAL ORGANIZATIONS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-20, para 3-8.a., Government-directed changes.	

AREAS TO EXAMINE

1. Confirm a contractual change has been made to the contract.

2. Verify the change has been incorporated in a timely manner.

3. Confirm all affected work authorizations, budgeting and scheduling documents have been revised to correctly reflect the effects of authorized changes.

4. Confirm budgets for changes are authorized, but not yet priced, are based on the contractor's resource plan for accomplishing the work. Verify near term budgets have been issued.

5. If the negotiated value of a change differs from the amount the contractor previously budgeted for change, verify compensation for the difference is made through the use of UB, MR, the reallocation of future budgets, or a combination of these.

DOCUMENTS

Format 11

EVALUATION COMMENTS:

5.b. RECONCILE ORIGINAL BUDGETS FOR THOSE ELEMENTS OF THE WBS IDENTIFIED AS PRICED LINE ITEMS IN THE CONTRACT, AND FOR THOSE ELEMENTS AT THE LOWEST LEVEL OF THE PROGRAM WBS, WITH CURRENT PERFORMANCE MEASUREMENT BUDGETS IN TERMS OF CHANGES TO THE AUTHORIZED WORK AND INTERNAL REPLANNING IN THE DETAIL NEEDED BY MANAGEMENT FOR EFFECTIVE CONTROL.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-20, para 3-8.b., Provide traceability to previous budgets.	

AREAS TO EXAMINE

1. Determine budgets resulting from changes to the internal planning are reconcilable to the budgets originally established for work.

2. Confirm the contractor has procedures prohibiting the movement of budget within the PMB without moving the associated scope of work.

3. Verify the above procedure is properly implemented.

DOCUMENTS

Budget revision records; Change control records, Manager interview results

EVALUATION COMMENTS:

5.c. PROHIBIT RETROACTIVE CHANGES TO RECORDS PERTAINING TO WORK PERFORMED WILL CHANGE PREVIOUSLY REPORTED AMOUNTS FOR DIRECT COSTS, INDIRECT COSTS, OR BUDGETS, EXCEPT FOR CORRECTION OF ERRORS AND ROUTINE ACCOUNTING ADJUSTMENTS.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-21, para 3-8.c., Control internal changes to the PMB.	

AREAS TO EXAMINE

1. Determine retroactive changes to BCWS and BCWP are prohibited except for error corrections and routine accounting adjustments.

DOCUMENTS

Authorization documents for retroactive budget adjustments; Manager interview results

EVALUATION COMMENTS:

5.d. PREVENT REVISIONS TO THE CONTRACT BUDGET BASE EXCEPT FOR GOVERNMENT-DIRECTED CHANGES TO CONTRACTUAL EFFORT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-23, para 3-8.d., Correlate contract value with the Contract Budget Base.	

AREAS TO EXAMINE

1. Verify the contractor has procedures preventing changes to the contract budget base (see definition) except for those authorized by contractual action.

DOCUMENTS

Change control procedures; Budget logs

EVALUATION COMMENTS:

5.e. DOCUMENT, INTERNALLY, CHANGES TO THE PERFORMANCE MEASUREMENT BASELINE AND, ON A TIMELY BASIS, NOTIFY EXPEDITIOUSLY THE PROCURING ACTIVITY THROUGH PRESCRIBED PROCEDURES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-23, para 3-8.e., Maintain change traceability.	

AREAS TO EXAMINE

1. Determine that, when changes are made to the PMB as a result of contractual direction, formal reprogramming, internal replanning, allocation of UB or MR, these changes are properly documented, and reflected and explained in the CPR.

2. Confirm restrictions to the changing of open work packages are followed.

3. Confirm retroactive changes to budgets for completed work , and work yet to begin, are made in accordance with established procedures.

DOCUMENTS

CPR; Budget logs; Format 11; Change authorization documents

EVALUATION COMMENTS:

MATERIAL MANAGEMENT GROUP

2.d. ESTABLISH BUDGETS FOR ALL AUTHORIZED WORK WITH SEPARATE IDENTIFICATION OF COST ELEMENTS (LABOR, MATERIAL, ETC.).

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-24, para 3-9.a., Establish budgets for material items.	

AREAS TO EXAMINE

1. Confirm budgets assigned to cost accounts for material requirements are properly planned and supported by material requirement documents.

2. Verify material budgets are time-phased in support of internal schedule requirements.

DOCUMENTS

Material Cost Account plans; Bill of Material; Format 12; Program schedules

EVALUATION COMMENTS:

2.e. TO THE EXTENT AUTHORIZED WORK CAN BE IDENTIFIED IN DISCRETE, SHORT-SPAN WORK PACKAGES, ESTABLISH BUDGETS FOR THIS WORK IN TERMS OF DOLLARS, HOURS, OR OTHER MEASURABLE UNITS. WHERE THE ENTIRE COST ACCOUNT CANNOT BE SUBDIVIDED INTO DETAILED WORK PACKAGES, IDENTIFY THE FAR TERM EFFORT IN LARGER PLANNING PACKAGES FOR BUDGETING AND SCHEDULING PURPOSES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-24, para, 3-9.b., Establish work packages for budgeted material items.	

AREAS TO EXAMINE

1. Confirm the contractor can substantiate work package and planning package budgets in terms supporting requirement for material items.

2. Where planning packages are established, verify there is a relationship between the budgets assigned and the material items associated with the package.

3. Confirm material work packages are detail planned sufficiently in advance to support material need dates.

4. Verify the contractor has budgeted for all known material requirements, including scrap, rework, mortality, destructive testing, etc.

DOCUMENTS

Cost account plans; manager interview results; work authorization documents; schedules; Format 9

EVALUATION COMMENTS:

2.h. IDENTIFY AND CONTROL LEVEL OF EFFORT ACTIVITY BY TIME-PHASED BUDGETS ESTABLISHED FOR THIS PURPOSE. ONLY EFFORT WHICH CANNOT BE IDENTIFIED AS DISCRETE, SHORT SPAN WORK PACKAGES OR AS APPORTIONED EFFORT WILL BE CLASSED AS LOE.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-25, para 3-9.c., Controlling material as level-of-effort.	

1. Verify material items are appropriately planned as discrete, apportioned or LOE.

2. Confirm high-dollar value or critical material items are not being tracked as LOE.

3. Verify LOE material items are properly separated from discrete activity in order to avoid distortion of performance measurement information.

DOCUMENTS

Format 9; Cost account plans; Material manager interview results

EVALUATION COMMENTS:

3.g. THE CONTRACTOR'S MATERIAL ACCOUNTING SYSTEM WILL PROVIDE FOR: ACCURATE COST ACCUMULATION AND ASSIGNMENT OF COSTS TO COST ACCOUNTS IN A MANNER CONSISTENT WITH THE BUDGETS USING RECOGNIZED, ACCEPTABLE COSTING TECHNIQUES; DETERMINATION OF PRICE VARIANCES BY COMPARING PLANNED VERSUS ACTUAL COMMITMENTS; COST PERFORMANCE MEASUREMENT AT POINT IN TIME MOST SUITABLE FOR THE CATEGORY OF MATERIAL INVOLVED, BUT NO EARLIER THAN THE TIME OF ACTUAL RECEIPT OF MATERIAL; DETERMINATION OF COST VARIANCES ATTRIBUTABLE TO THE EXCESS USAGE OF MATERIAL; DETERMINATION OF UNIT OR LOT COSTS WHEN APPLICABLE; AND FULL ACCOUNTABILITY FOR ALL MATERIAL PURCHASED FOR THE CONTRACT INCLUDING THE RESIDUAL INVENTORY.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-25, para 3-9.d., Account for material purchased for the contract.	

AREAS TO EXAMINE

1. Confirm the contractor's material control procedures include the following requirements and these requirements are being properly implemented: a) material costs are being reported within the same accounting period as the associated BCWP, b) material price variances are calculated at the point of commitment by comparing budgeted material values to purchase order values, c) cost performance for material occurs at the point of time most suitable for the type of material involved, but no earlier than point of receipt., d) the integrated management system can identify cost variances due to the excess usage of material, and e) all materials purchased for the contract are fully accounted for (including residual inventory).

2. In conjunction with Criteria Item 3.f, determine whether the contractor's accounting system accurately identifies unit, equivalent unit, and lot costs by type and amount of material.

DOCUMENTS

Format 12, Material Trace; Internal performance reports

EVALUATION COMMENTS:

4.a. IDENTIFY AT THE COST ACCOUNT LEVEL ON A MONTHLY BASIS USING DATA FROM, OR RECONCILABLE WITH, THE ACCOUNTING SYSTEM; COMPARISON OF BCWS AND BCWP; COMPARISON OF BCWP AND APPLIED (ACTUAL WHERE APPROPRIATE) DIRECT COSTS FOR THE SAME WORK; AND VARIANCES RESULTING FROM THE ABOVE COMPARISONS CLASSIFIED IN TERMS OF LABOR, MATERIAL, OR OTHER APPROPRIATE ELEMENTS, TOGETHER WITH THE REASONS FOR SIGNIFICANT VARIANCES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-26, para 3-9.e., Analyze material variances at the cost account level.	

AREAS TO EXAMINE

1. Confirm through sampling analysis of significant variances for material is performed at the cost account level.

2. Verify variance analysis identifies the portion of the cost variance is due to usage separately from the portion due to price changes.

DOCUMENTS

Format 12, Material Trace; Material variance analysis documentation; Internal material performance data

EVALUATION COMMENTS:

4.f. BASED ON PERFORMANCE TO DATE, ON COMMITMENT VALUES FOR MATERIAL, AND ON ESTIMATES OF FUTURE CONDITIONS, DEVELOP REVISED ESTIMATES OF COST AT COMPLETION FOR WBS ELEMENTS IDENTIFIED IN THE CONTRACT AND COMPARE THESE WITH THE CONTRACT BUDGET BASE AND THE LATEST STATEMENT OF FUNDS REQUIREMENTS REPORT TO THE GOVERNMENT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-27, para 3-9.f., Provide valid estimates of future material requirements.	

AREAS TO EXAMINE

1. Verify estimates of costs at completion are based on: a) actual material costs to date, b) commitment values for material on order, c) performance to date considering price and usage variance information, c) knowledgeable projections of future performance, and d) estimates of economic escalation including expected material price adjustments.

2. Confirm requirements for additional material items are properly coordinated with management and the material procurement organization.

3. Verify material budgets at completion are compared to estimates for material and causes of the variances are explained.

4. Confirm material EACs are generated in a rational, consistent manner, and there are procedures established requiring monthly updates and annual comprehensive estimates, at a minimum, or more often if program needs dictate.

DOCUMENTS

Cost Performance Report; Internal performance reports; EAC Supporting documentation

EVALUATION COMMENTS:

SUBCONTRACT MANAGEMENT GROUP

1.b. IDENTIFY THE INTERNAL ORGANIZATIONAL ELEMENTS AND THE MAJOR SUBCONTRACTORS RESPONSIBLE FOR ACCOMPLISHING THE AUTHORIZED WORK.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-27, para 3-10.a., Establish subcontract management organizations.	

AREAS TO EXAMINE

1. Review the program organization chart, the CWBS (and CWBS Dictionary, if applicable), and the Responsibility Assignment Matrix (RAM).

2. Ensure major subcontractors are identified to the appropriate scope of work.

3. Verify the appropriate organization has been assigned responsibility for managing the performance of the major subcontractor(s).

DOCUMENTS

RAM, Format 8; CWBS and CWBS Dictionary (if applicable); Contractor organization charts

EVALUATION COMMENTS:

2.d. ESTABLISH BUDGETS FOR ALL AUTHORIZED WORK WITH SEPARATE IDENTIFICATION OF COST ELEMENTS (LABOR, MATERIAL, ETC.).

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-27, para 3-10.b., Budget for the authorized subcontracted effort.	

AREAS TO EXAMINE

1. Confirm budgets assigned to cost accounts for subcontracted items are properly planned and supported by time-phased information from the subcontractor.

2. Verify subcontract budgets are time-phased in support of internal and contractual schedule requirements.

DOCUMENTS

Subcontract Cost Account plans; BCWS supporting documentation; Program schedules

EVALUATION COMMENTS:

2.e. TO THE EXTENT AUTHORIZED WORK CAN BE IDENTIFIED IN DISCRETE, SHORT-SPAN WORK PACKAGES, ESTABLISH BUDGETS FOR THIS WORK IN TERMS OF DOLLARS, HOURS, OR OTHER MEASURABLE UNITS. WHERE THE ENTIRE COST ACCOUNT CANNOT BE SUBDIVIDED INTO DETAILED WORK PACKAGES, IDENTIFY THE FAR TERM EFFORT IN LARGER PLANNING PACKAGES FOR BUDGETING AND SCHEDULING PURPOSES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-28, para 3-10.c., Where necessary, establish work packages for subcontracted effort.	

AREAS TO EXAMINE

1. Confirm the contractor can substantiate work package and planning package budgets based on subcontractor and/or in-house documentation.

2. Where multiple work packages are used, confirm the contractor can substantiate the rationale for budgets assigned to each work package.

3. Confirm subcontractor work packages are detail planned sufficiently in advance to support program requirements.

DOCUMENTS

Cost account plans; manager interview results; work authorization documents; schedules

EVALUATION COMMENTS:

2.h. IDENTIFY AND CONTROL LEVEL OF EFFORT ACTIVITY BY TIME-PHASED BUDGETS ESTABLISHED FOR THIS PURPOSE. ONLY EFFORT WHICH CANNOT BE IDENTIFIED AS DISCRETE, SHORT SPAN WORK PACKAGES OR AS APPORTIONED EFFORT WILL BE CLASSED AS LOE.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-28, para, 3-10.d., Budgeting for LOE subcontracts.	

AREAS TO EXAMINE

1. If subcontract cost accounts are planned as LOE, verify this is the appropriate earned value technique for the work being performed by the subcontractor.

2. Verify LOE subcontract budgets are appropriately separated from discrete budget to avoid distortion of performance measurement information.

DOCUMENTS

Subcontract Cost Account plans; Subcontract scope of work descriptions; Subcontract manager interviews

EVALUATION COMMENTS:

3.a. RECORD DIRECT COSTS ON AN APPLIED OR OTHER ACCEPTABLE BASIS IN A MANNER CONSISTENT WITH THE BUDGETS IN A FORMAL SYSTEM THAT IS CONTROLLED BY THE GENERAL BOOKS OF ACCOUNT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-28, para 3-10.e., Collect and report actuals for subcontracted efforts.	

AREAS TO EXAMINE

1. Confirm the contractor's subcontract management procedures include the following requirements, and these requirements are being properly implemented:
   a) subcontract costs are being reported within the same accounting period as the associated BCWP.
   b) where subcontract actuals are not available, estimated actuals will be used.
   c) subcontract BCWP is based on actual progress.
   d) where progress payments are made to the subcontractor, reconciliation to reported earned value, i.e., progress is made.
   e) if the subcontractor supports multiple CWBS elements, methodologies are in place to assign actual costs to the appropriate elements, including overhead, G&A, MR, and profit/fee.

DOCUMENTS

Subcontractor progress payment requests; Internal and external performance reports; Subcontract cost account plans

EVALUATION COMMENTS:

4.a. IDENTIFY AT THE COST ACCOUNT LEVEL ON A MONTHLY BASIS USING DATA FROM, OR RECONCILABLE WITH, THE ACCOUNTING SYSTEM; COMPARISON OF BCWS AND BCWP; COMPARISON OF BCWP AND APPLIED (ACTUAL WHERE APPROPRIATE) DIRECT COSTS FOR THE SAME WORK; AND VARIANCES RESULTING FROM THE ABOVE COMPARISONS CLASSIFIED IN TERMS OF LABOR, MATERIAL, OR OTHER APPROPRIATE ELEMENTS, TOGETHER WITH THE REASONS FOR SIGNIFICANT VARIANCES.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-29, para 3-10.f., Provide effective analysis of subcontractor performance.	

AREAS TO EXAMINE

1. Verify the subcontract manager receives, reviews and provides analysis of the subcontractor's performance measurement information.

2. Verify the proper integration of subcontract cost and schedule variances into the prime's data.

3. Verify the subcontractor's data is adjusted, as appropriate, and reconciled to the subcontractor's reports.

4. Evaluate the process used by the subcontractor manager to reconcile reported earned value to the physical progress reflected in subcontractor progress payment requests.

DOCUMENTS

Subcontractor performance reports; Prime to subcontractor reconciliation's; Progress payment requests

EVALUATION COMMENTS:

4.f. BASED ON PERFORMANCE TO DATE, ON COMMITMENT VALUES FOR MATERIAL, AND ON ESTIMATES OF FUTURE CONDITIONS, DEVELOP REVISED ESTIMATES OF COST AT COMPLETION FOR WBS ELEMENTS IDENTIFIED IN THE CONTRACT AND COMPARE THESE WITH THE CONTRACT BUDGET BASE AND THE LATEST STATEMENT OF FUNDS REQUIREMENTS REPORT TO THE GOVERNMENT.

CHAPTER 3 REFERENCES	SYSTEM DESCRIPTION REFERENCES
Pg. 3-29, para 3-10.g., Generate valid EACs for subcontracted efforts.	

AREAS TO EXAMINE

1. Verify EACs for the subcontracted item are based on: a) actual costs to date, b) commitment values for subcontracted items, c) performance to date as reported in the subcontractor's report and analyzed by the subcontract manager, d) knowledgeable projections of future performance, and e) estimates of economic escalation.

2. Verify the subcontract manager is preparing an independent estimate of subcontractor costs and reporting it to the customer as appropriate.

3. Verify subcontract BAC (internal and external) is compared to estimates and causes of variances are explained.

4. Confirm subcontract EACs are generated in a rational, consistent manner and procedures exist requiring monthly evaluation and updates as appropriate.

DOCUMENTS

Subcontract estimate supporting documentation; Subcontractor performance reports

EVALUATION COMMENTS:

APPENDIX F

C/SCSC REVIEW EXHIBITS

1. General. Within this appendix are typical formats for performing data reconciliations and evaluating cost account and work package characteristics. These formats are only required for demonstration reviews during the process of obtaining initial validation. The formats may be selectively used, in whole or in part, on SARs and ESARs at the discretion of the Team Chief. Their use should be based only on a need to ensure accurate data summarization or process compliance. It is recognized that the formats may require modification to meet the requirements of different organizations and contract work breakdown structures. The team members' assigned responsibilities applicable to these formats should include them as exhibits in the review report. Worksheets needed to record the data on the formats should be developed in conjunction with the contractor. Contractor internal reports and documentation should replace formats wherever possible provided their content is consistent with the requirements of the individual formats. While review and acceptance of these formats is the responsibility of the review team, it is strongly recommended that they be prepared in advance by the contractor. Prior to commencing the demonstration review or the ESAR, the in-plant representatives, including DCAA, should review these formats for accuracy. This will enhance the review process and help reduce time in-plant by the review team.

2. Considerations. The following guidelines must be considered:

a. A single, trace cost account should be used to the maximum extent possible in completing these formats.

b. Formats should include data which is representative of measured effort (including material work packages, if separate), apportioned (factored) effort, and LOE.

c. Data must be evaluated for consistent application of standards or targets, planned ratios and bases, factors, rates, and methods.

d. Accomplishment indicators (for example, milestones, realization factors) must be consistent for computing BCWP.

e. Source of the data elements used in the sample must be substantiated.

f. The selected CWBS level should be interpreted as the lowest CWBS element on which the selected cost account is based.

3. Definitions and Instructions. A general description of each sample format is provided below. Additional instructions are also included on each sample format.

a. Format 1 - Subsystem Integration Major Organization (For Example: Engineering) and Associated Documentation. This format intends to show that a contractor's major control subsystems (organization, work authorization, budgeting, scheduling, and performance measurement) are integrated with the CWBS and among themselves at all levels. If properly integrated, the effects of a change within one subsystem will be easily identifiable in related subsystems and its program impact readily determined. The essential documents that characterize each subsystem should be identified. Integration is demonstrated by confirming a relationship between documents, organization, and CWBS at each level.

b. Format 2 - Reconciliation of Internal Data (Cost Account Data). This format illustrates that key C/SCSC activities of budgeting, performance measurement, cost accumulation, and future cost projection are being undertaken at the cost account work package level. Further, it exhibits the contractor's ability to measure these activities in detailed element of cost categories. By engaging in these activities at the cost account level, the source of cost and schedule problems can be identified. The format displays a matrix of all the work/planning packages for a selected cost account distributed into elements of cost. BCWS and BCWP, as a minimum, should be reflected at the work/planning package level. The data elements must reconcile with the appropriate subsystem documentation.

c. Format 3 - Reconciliation of Internal Data (CWBS Data). Format 3 is a continuation of Format 2. It illustrates the contractor's ability to budget, accumulate costs, measure performance, and project cost estimates at successively higher levels of the CWBS using data summarized from the cost account level. It further illustrates that cost account data is not allocated to more than one CWBS element as it is summarized. The cost account summary information from Format 2 is the starting point. This data must sum upward through the CWBS levels. The top level can be either the total contract or a designated CPR reporting level as agreed to by the contractor and the team chief prior to the review.

d. Format 4 - Reconciliation of Internal Data (Organization Data). Similar to Format 3, Format 4 also exhibits a data summarization trail from the cost account to a designated reporting

level, but does so through the contractor's organizational hierarchy. The contractor must collect budget, cost and performance data by element of cost at all organizational levels, and this data must be summed to higher levels without allocation to more than one organization. This data is eventually consolidated into the CPR Format 2 where contract status and performance are evaluated by organization. The cost account summary information obtained from JIG Format 2 is the starting point. This must sum upward through organizational levels to the total contact or a designated reporting level. The format must be an accurate representation of data available at each level from the internal system.

e. Format 5 - Reconciliation of External Reports to Internal Data (CWBS). This format is a direct reconciliation between data furnished to the government on cost reports and that contained within the contractor's internal reporting system. Performance measurement elements (BCWS, BCWP, ACWP, BAC, and EAC) recorded at the cost account level are required to be summed through the CWBS. The data base for accomplishing this summarization logically should be the basis for government cost reports, so that both contractor and government are utilizing the same data for analysis and managerial purposes. Differences in ACWP between the CPR and the contractor's internal system may be encountered due to the use of estimated actuals. All differences between the reports must be adequately addressed and substantiated with back-up documentation as necessary.

f. Format 6 - Reconciliation of External Reports to Internal Data (Major Internal Organizations). Similar to Format 5, this format also provides for a direct reconciliation of cost report data to that found within the contractor's internal system, but does so on an organizational summary basis. Like the CWBS, a contractor's organizational structure is a data element summarization trail from cost account to the total contract level. Internal system data should be from a common source. ACWP adjustments discussed in Format 5 apply to this format as well. All differences between the reports must be adequately addressed and substantiated with back-up documentation as necessary.

g. Format 7 - Contract Indirect Cost Evaluation. This format illustrates the contractor's ability to identify management levels responsible for controlling indirect budgets and accumulating indirect charges against those budgets. Indirect costs must be summed from their accumulation point to the total contract level. A matrix of overhead pools and responsible organizations/departments are displayed with specific management responsibility indicated at intersections. The contractor has the flexibility in designating the various types of indirect pools. The data will be at the lowest level that overhead is applied on the contract.

h. Format 8 - Responsibility Assignment Matrix. This format displays the intersection of the responsible organization with the CWBS and identifies all planned cost accounts. With the contractor's extended CWBS on one axis and the contractor's organization down to the cost account manager's organization on the other axis, all levels of the organization should be shown. A dollarized matrix is preferred where dollars are identified at each level of the horizontal and vertical axis. Recommend that this format be prepared during the Readiness Review and updated accordingly during the Demonstration Review.

i. Format 9 - Evaluation of Cost Account/Work Packages. This format illustrates the composition of the performance measurement baseline between measured effort (work packages) and planning packages, and it identifies the earned value techniques utilized for performance accomplishment. The distribution of cost accounts/work packages depicted on the format can reflect all work under the contract or a representative sample, (e.g., all manufacturing cost accounts) agreed to by the team chief.

j. Format 10 - Schedule Trace. This format illustrates the contractor's vertical and horizontal traceability within the scheduling system. It involves identifying a master schedule, various levels of intermediate schedules (if any), and detail schedules down to the work package level. Interdependencies should be identified. Live data will be used.

k. Format 11 - Work/Budget Change Trace. This format illustrates the contractors process for establishing work and budget authority from the program level to the cost account/work package level. When utilized on reviews related to major modifications and/or option exercise, this format should trace the contractor's ability to maintain the performance measurement baseline while incorporating work and budget changes at the cost account level. Live data will be used.

l. Format 12 - Material Management Trace. This format identifies 1) the authorizing, requisitioning, and purchasing cycle, 2) the receipt, storage, and issue cycle, and 3) the accounting cycle. The determination point of BCWS, BCWP, and ACWP will be highlighted along with price and usage variance, variance analysis, and EAC. Actual documents should be used.

SUBSYSTEM INTEGRATION
MAJOR ORGANIZATION (FOR EXAMPLE: ENGINEERING) AND ASSOCIATED DOCUMENTATION
SAMPLE FORMAT 1

CWBS LEVEL	ORGANIZATION LEVEL	SCHEDULING	BUDGETING	WORK AUTHORIZATION	PERFORMANCE MEASUREMENT
(1) CONTRACT	(2)	(3)	(4)	(5)	(6)
COST ACCOUNT					
WORK PACKAGE					

NOTES:

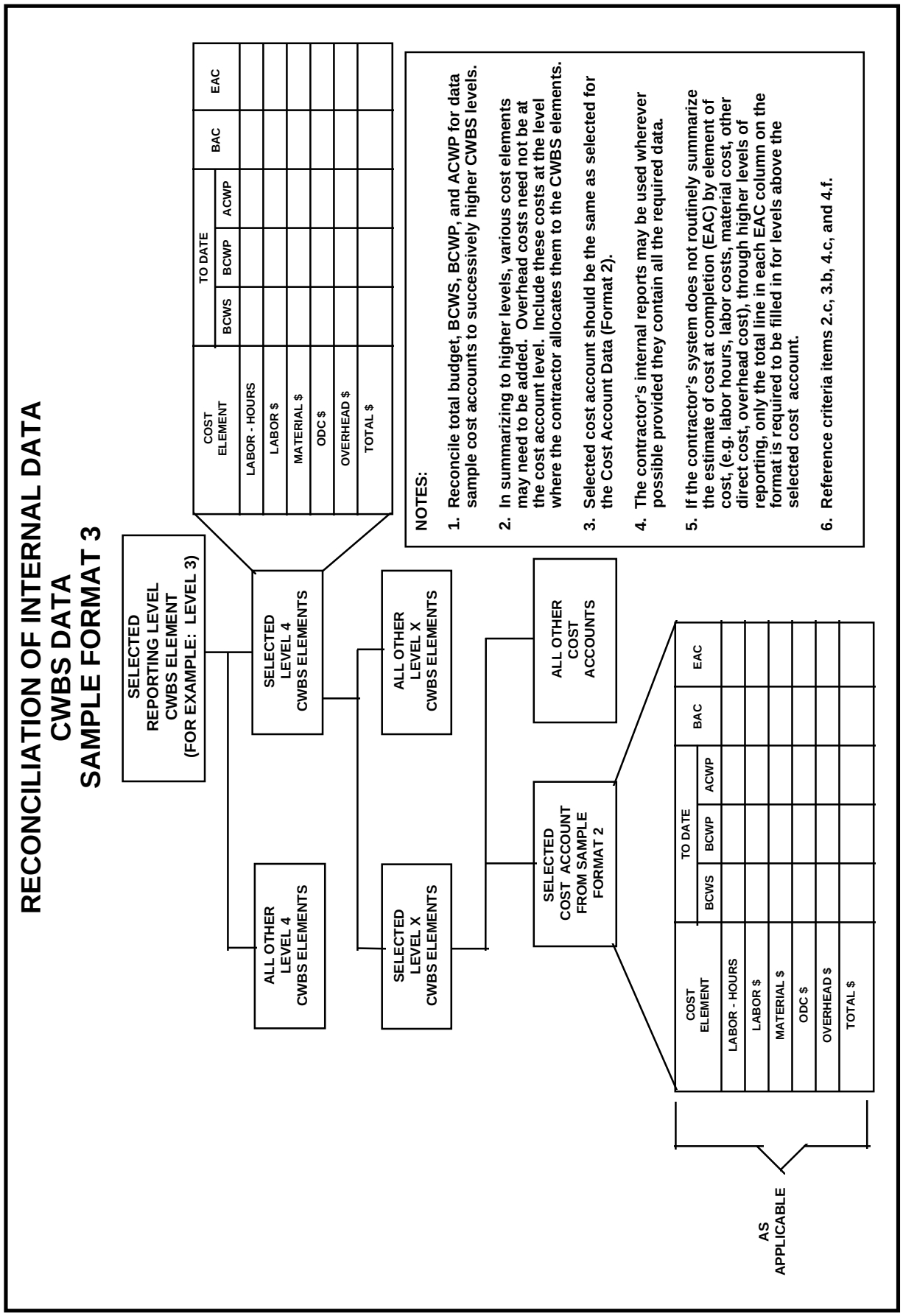
1. Column 1 - Identify a representative element (name & number) for each level of the CWBS from the total contract level to the cost account and work package level.
2. Column 2 - Where applicable, identify a representative responsible/performing element by name and/or number for each level of the organization from the corporate/division level to the cost account and work package level.
3. Columns 3, 4, 5, and 6 - Identify the appropriate document title associated with the column heading for each CWBS level (column 1) and internal organization level (colunm 2).
4. Prepare format for each major organization or subdivision that differs.
5. There need not be a different type of document used for each CWBS and organization level.
6. Reference criteria item 1.c.

RECONCILIATION OF INTERNAL DATA
COST ACCOUNT DATA
SAMPLE FORMAT 2

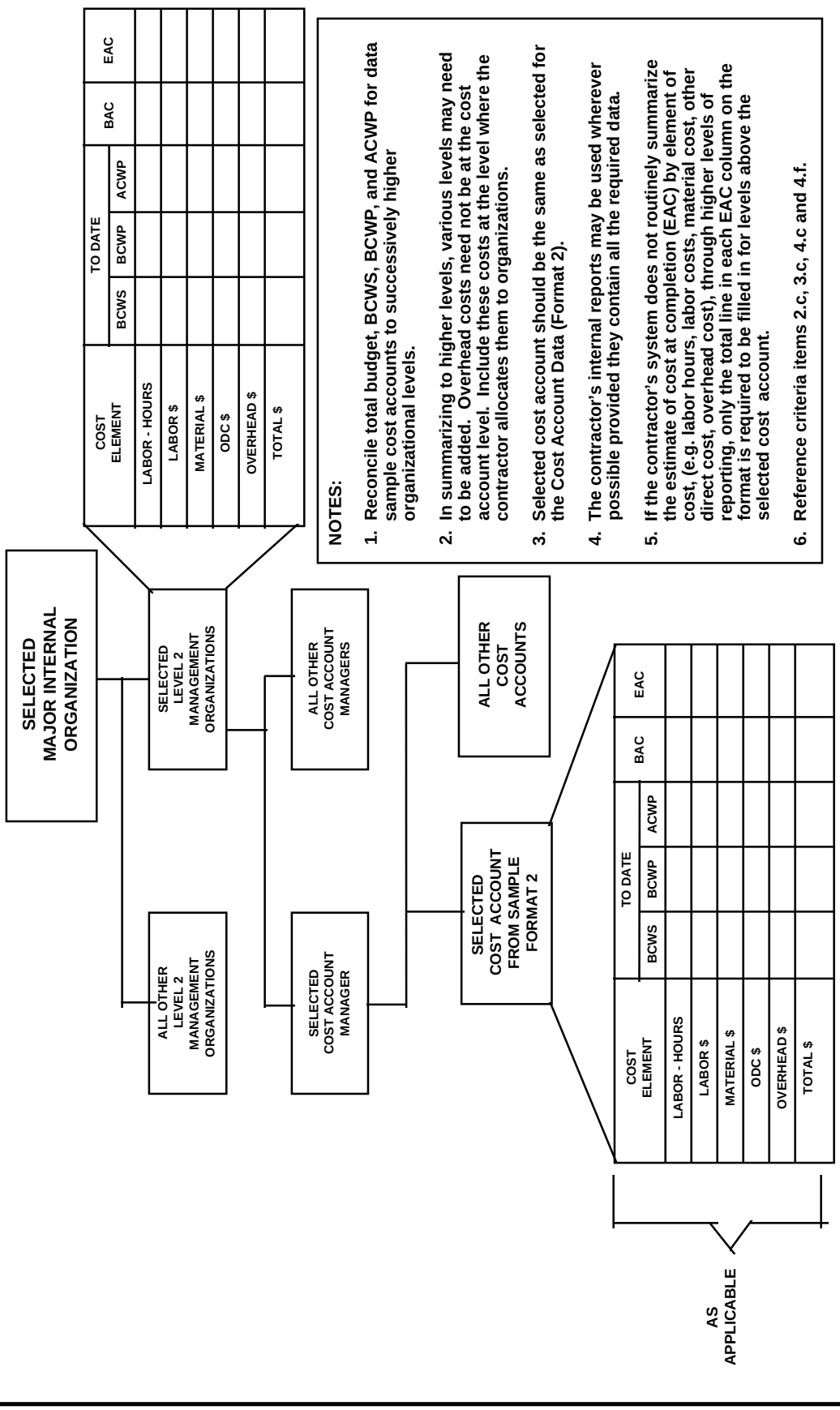
COST ACCOUNT ORGANIZATION WORK PACKAGE/ PLANNING PACKAGE	TOTAL BUDGET	AS APPLICABLE (CUMULATIVE TO DATE DATA)																					
		LABOR-HOURS				LABOR $				MATERIAL $				ODC $				OVERHEAD $				TOTAL $			
		BCWS	BCWP	ACWP	EAC	BCWS	BCWP	ACWP	EAC	BCWS	BCWP	ACWP	EAC	BCWS	BCWP	ACWP	EAC	BCWS	BCWP	ACWP	EAC	BCWS	BCWP	ACWP	EAC
CA Name/No. ORG. Name/No. WP/PP No.																									
Selected Cost Account Total																									

NOTES:

1. **Overhead $ need not be at the work package or cost account level. Include these $ at the level where the contractor allocates them.**
2. **Summarization to contract level continues on sample formats 3, 4, 5.**
3. **ACWP and EAC need not be at the work package level.**
4. **A separate format will be prepared for each trace element selected.**
5. **The contractor's internal reports may be used wherever possible provided they contain all required data.**
6. **Reference criteria items 2.c, 2.d, 2.f, 3.b, 3.c, 3.e, 4.c, and 4.f.**


RECONCILIATION OF INTERNAL DATA
CWBS DATA
SAMPLE FORMAT 3
SELECTED REPORTING LEVEL CWBS ELEMENT (FOR EXAMPLE: LEVEL 3)
SELECTED LEVEL 4 CWBS ELEMENTS
ALL OTHER LEVEL 4 CWBS ELEMENTS
ALL OTHER LEVEL X CWBS ELEMENTS
SELECTED LEVEL X CWBS ELEMENTS
ALL OTHER COST ACCOUNTS
SELECTED COST ACCOUNT FROM SAMPLE FORMAT 2
COST ELEMENT
TO DATE
BCWS
BCWP
ACWP
BAC
EAC
LABOR - HOURS
LABOR $
MATERIAL $
ODC $
OVERHEAD $
TOTAL $
AS APPLICABLE
NOTES:
1. Reconcile total budget, BCWS, BCWP, and ACWP for data sample cost accounts to successively higher CWBS levels.
2. In summarizing to higher levels, various cost elements may need to be added. Overhead costs need not be at the cost account level. Include these costs at the level where the contractor allocates them to the CWBS elements.
3. Selected cost account should be the same as selected for the Cost Account Data (Format 2).
4. The contractor's internal reports may be used wherever possible provided they contain all the required data.
5. If the contractor's system does not routinely summarize the estimate of cost at completion (EAC) by element of cost, (e.g. labor hours, labor costs, material cost, other direct cost, overhead cost), through higher levels of reporting, only the total line in each EAC column on the format is required to be filled in for levels above the selected cost account.
6. Reference criteria items 2.c, 3.b, 4.c, and 4.f.

RECONCILIATION OF INTERNAL DATA ORGANIZATION DATA SAMPLE FORMAT 4



RECONCILIATION OF EXTERNAL REPORTS TO INTERNAL DATA (CWBS)
SAMPLE FORMAT 5

CWBS	DATA ELEMENTS							
	CURRENT PERIOD			CUMULATIVE TO DATE			BAC	EAC
	BCWS	BCWP	ACWP	BCWS	BCWP	ACWP		
AIR VEHICLE COST PERFORMANCE REPORT (FORMAT #1)								
CONTRACTOR INTERNAL REPORT (SPECIFY)								
DIFFERENCE								
TEST: COST PERFORMANCE REPORT								
CONTRACTOR INTERNAL REPORT (SPECIFY)								
DIFFERENCE								
SYSTEM ENGINEERING COST PERFORMANCE REPORT								
OTHER								
TOTAL CWBS ELEMENTS COST PERFORMANCE REPORT								
CONTRACTOR INTERNAL REPORT								
DIFFERENCE								

NOTES:

1. Reports to be compared should cover identical periods.
2. Items shown in the first column are for illustrative purposes. Use applicable WBS reporting level items.
3. Analyze differences on a separate worksheet, trace each difference to its origin, and explain.
4. Reference criteria items 4.c and 4.f.

RECONCILIATION OF EXTERNAL REPORTS TO INTERNAL DATA
(MAJOR INTERNAL ORGANIZATIONS)
SAMPLE FORMAT 6

MAJOR INTERNAL ORGANIZATION	DATA ELEMENTS							
	CURRENT PERIOD			CUMULATIVE TO DATE			BAC	EAC
	BCWS	BCWP	ACWP	BCWS	BCWP	ACWP		
ENGINEERING COST PERFORMANCE REPORT (FORMAT # 2)								
CONTRACTOR INTERNAL REPORT (SPECIFY)								
DIFFERENCE								
MANUFACTURING COST PERFORMANCE REPORT								
CONTRACTOR INTERNAL REPORT (SPECIFY)								
DIFFERENCE								
OTHER COST PERFORMANCE REPORT								
CONTRACTOR INTERNAL REPORT (SPECIFY)								
TOTAL CWBS ELEMENTS COST PERFORMANCE REPORT								
CONTRACTOR INTERNAL REPORT								
DIFFERENCE								

NOTES:

1. Reports to be compared should cover identical periods.
2. Items shown in the first column are for illustrative purposes. Use applicable contractor organizational structure.
3. Analyze differences on a separate worksheet, trace each difference to its origin, and explain.
4. Reference criteria items 4.c and 4.f.

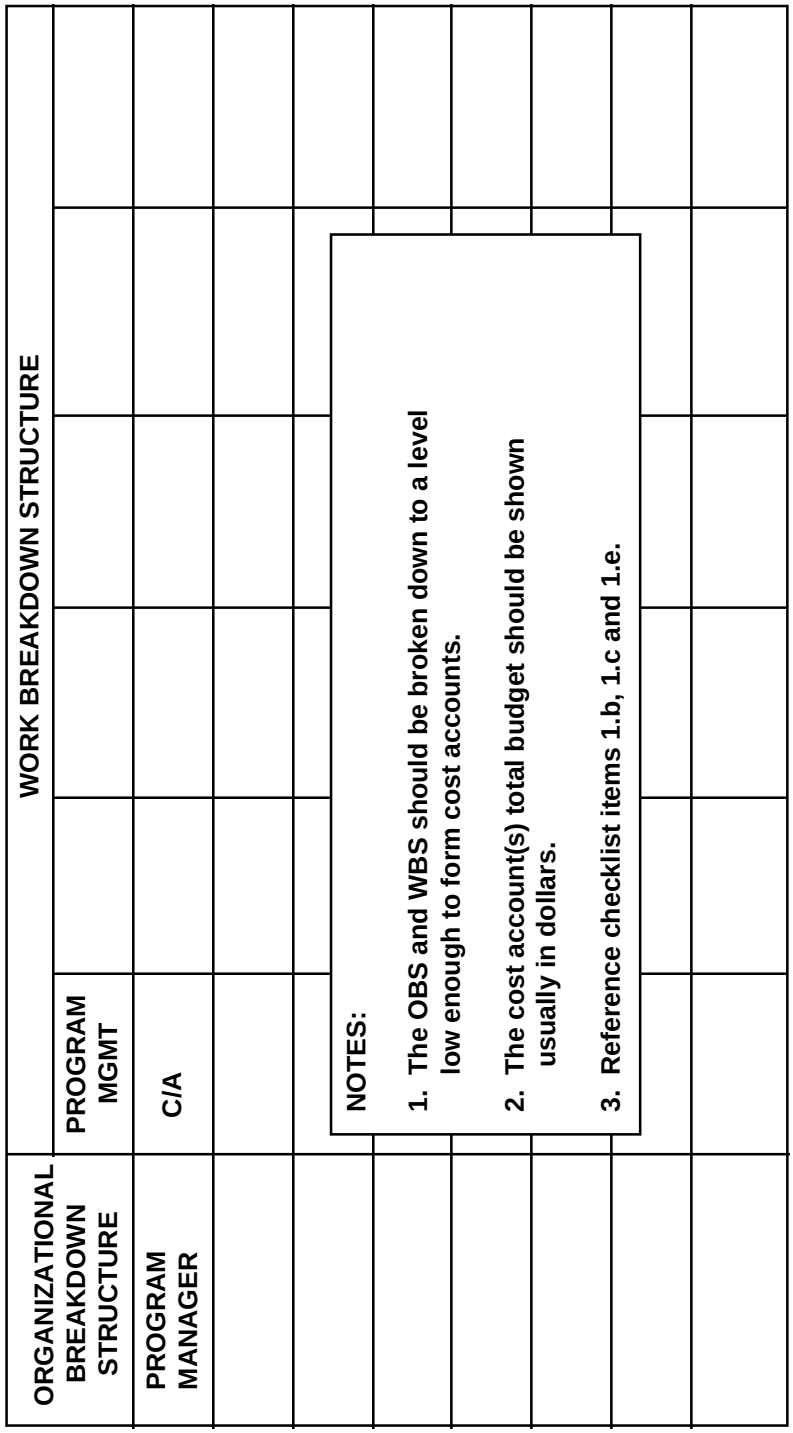
CONTRACT INDIRECT COST EVALUATION
SAMPLE FORMAT 7

TYPE OF OVERHEAD POOL	DATA ELEMENT	MAJOR ORGANIZATIONS					
		ENGINEERING	FACTORY	TOOLING	LOGISTICS	ETC.	SUBTOTAL
MANUFACTURING	BUDGET (TOTAL) BUDGET TO DATE ACTUALS TO DATE DIFFERENCE						
ENGINEERING	BUDGET (TOTAL) BUDGET TO DATE ACTUALS TO DATE DIFFERENCE						
MATERIAL	BUDGET (TOTAL) BUDGET TO DATE ACTUALS TO DATE DIFFERENCE						
OTHER	BUDGET (TOTAL) BUDGET TO DATE ACTUALS TO DATE DIFFERENCE						
TOTAL	BUDGET (TOTAL) BUDGET TO DATE ACTUALS TO DATE DIFFERENCE						

NOTES:

1. Format illustrates overhead planning budget to date, and actuals to date, by overhead pool and associated organization allocation base.
2. Entries in the first column should reflect the pools established by the contractor.
3. Data to accomplish this format should be derived from the lowest level at which contract indirect costs are planned and allocated to organizations.
4. Analyze differences on supporting worksheets.
5. Reference criteria items 2.i and 4.b.

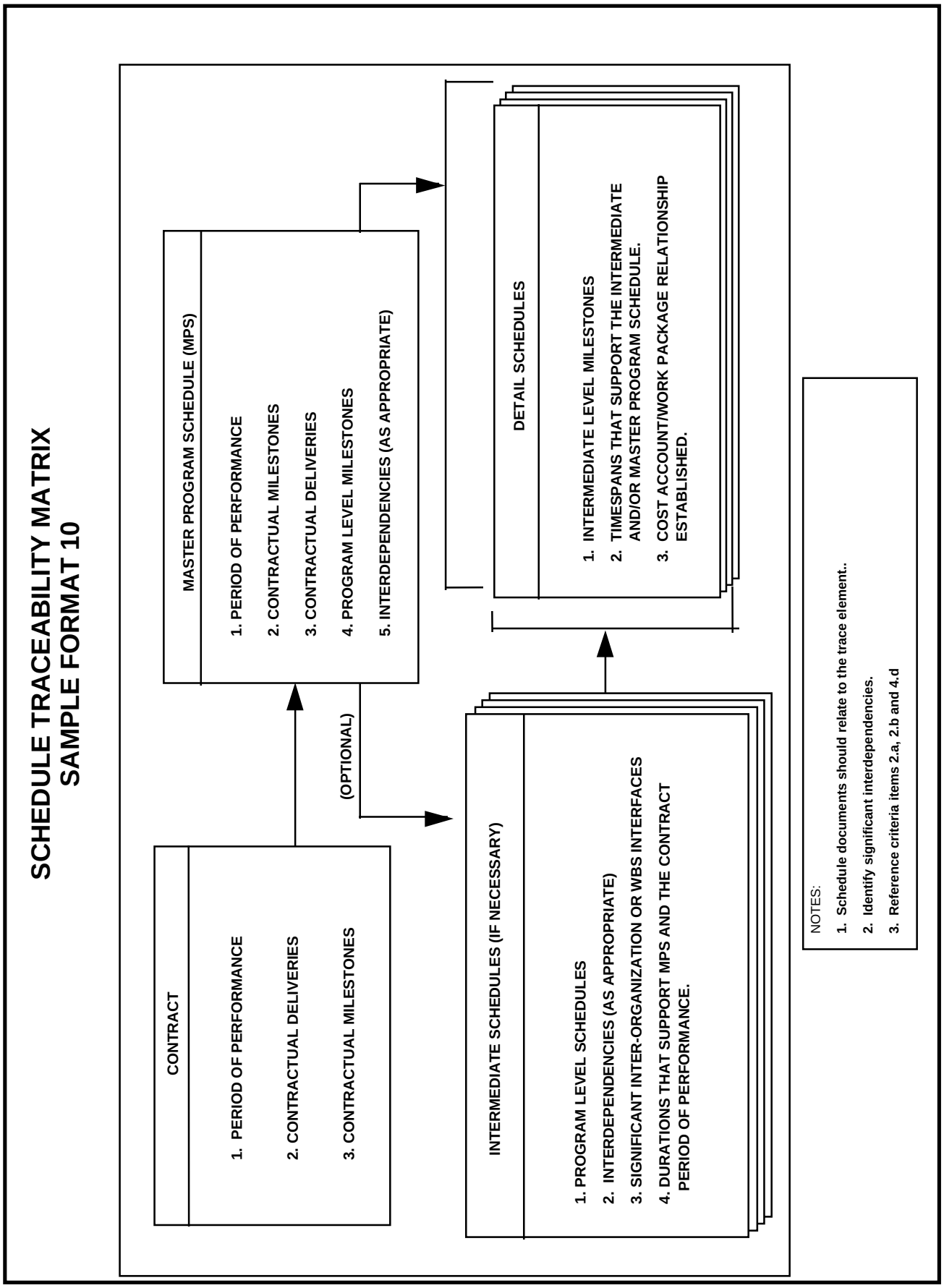
RESPONSIBILITY ASSIGNMENT MATRIX
SAMPLE FORMAT 8

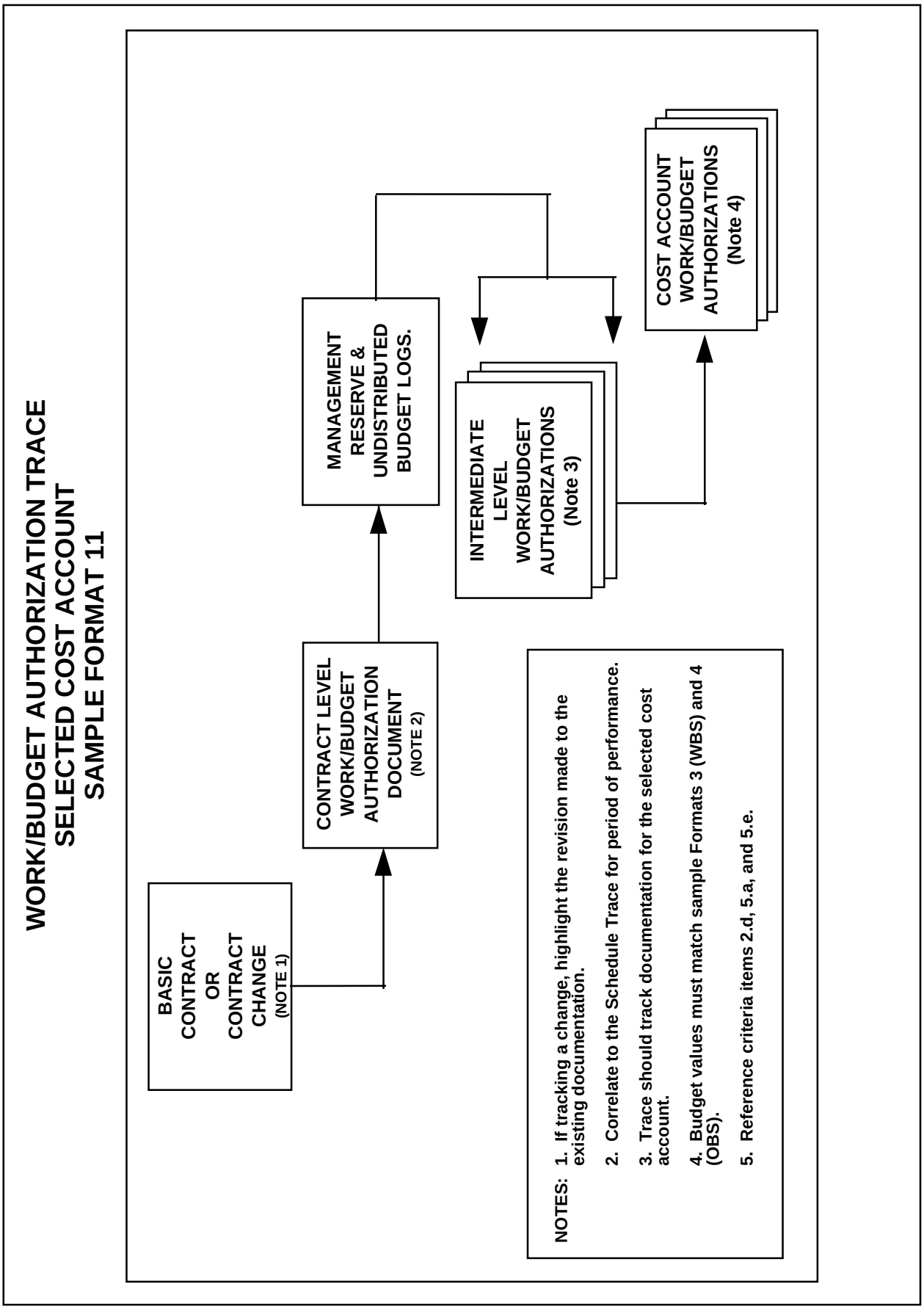


EVALUATION OF COST ACCOUNT/WORK PACKAGES
SAMPLE FORMAT 9

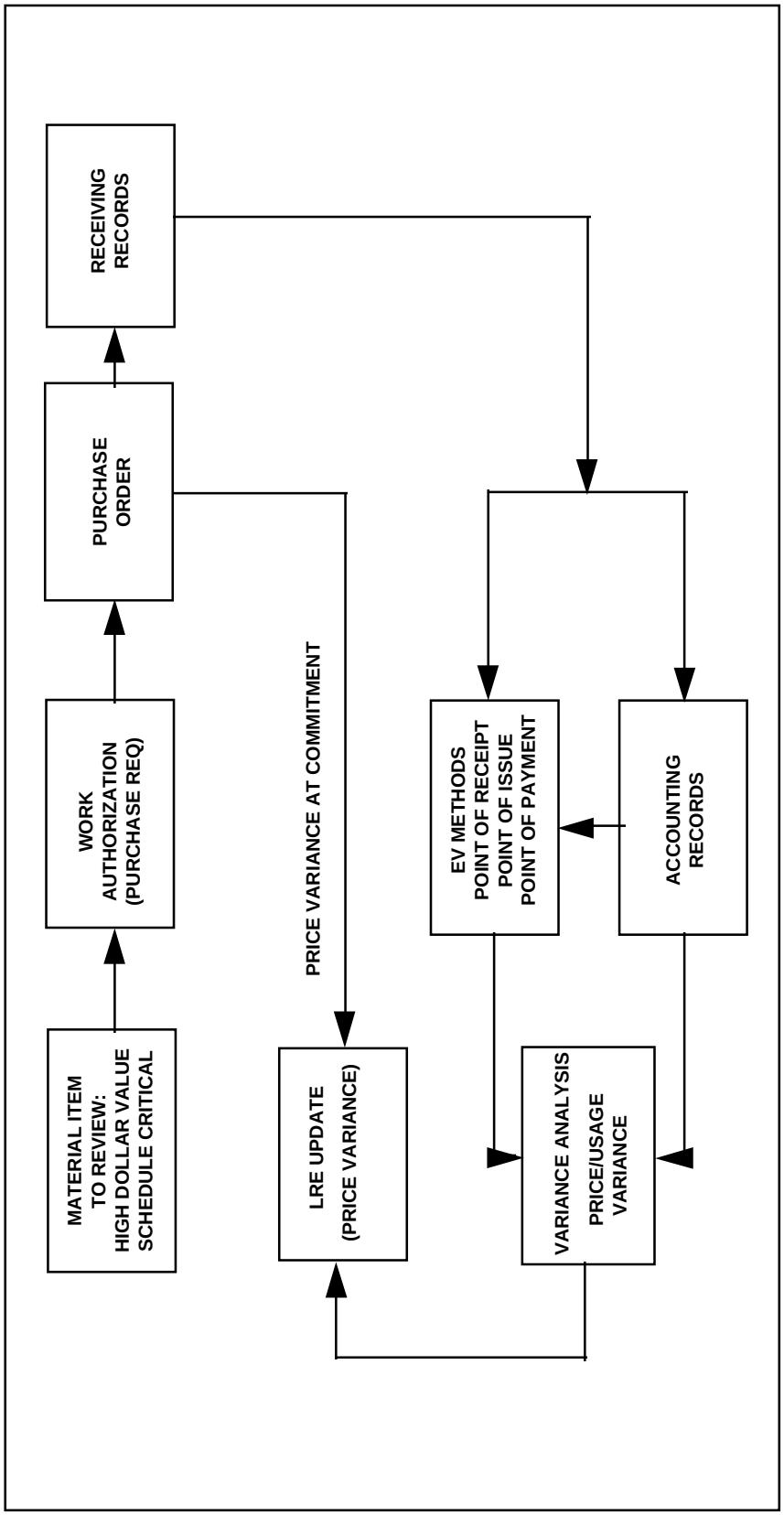
WORK PACKAGES TYPE OF MEASUREMENT	TOTAL VALUE $ or HOURS	PERCENT OF TOTAL
OBJECTIVE INDICATORS		
SUBJECTIVE INDICATORS		
APPORTIONED		
LEVEL OF EFFORT		
SUBTOTAL		
PLANNING PACKAGES		
TOTAL		100%

NOTES:
1. Use data from total contract or a representative sample (basis of sample should be explained).
2.. Reference criteria items 2.e, 2.h and 3.e.


SCHEDULE TRACEABILITY MATRIX
SAMPLE FORMAT 10
CONTRACT
1. PERIOD OF PERFORMANCE
2. CONTRACTUAL DELIVERIES
3. CONTRACTUAL MILESTONES
(OPTIONAL)
MASTER PROGRAM SCHEDULE (MPS)
1. PERIOD OF PERFORMANCE
2. CONTRACTUAL MILESTONES
3. CONTRACTUAL DELIVERIES
4. PROGRAM LEVEL MILESTONES
5. INTERDEPENDENCIES (AS APPROPRIATE)
INTERMEDIATE SCHEDULES (IF NECESSARY)
1. PROGRAM LEVEL SCHEDULES
2. INTERDEPENDENCIES (AS APPROPRIATE)
3. SIGNIFICANT INTER-ORGANIZATION OR WBS INTERFACES
4. DURATIONS THAT SUPPORT MPS AND THE CONTRACT PERIOD OF PERFORMANCE.
DETAIL SCHEDULES
1. INTERMEDIATE LEVEL MILESTONES
2. TIMESPANS THAT SUPPORT THE INTERMEDIATE AND/OR MASTER PROGRAM SCHEDULE.
3. COST ACCOUNT/WORK PACKAGE RELATIONSHIP ESTABLISHED.
NOTES:
1. Schedule documents should relate to the trace element..
2. Identify significant interdependencies.
3. Reference criteria items 2.a, 2.b and 4.d


WORK/BUDGET AUTHORIZATION TRACE
SELECTED COST ACCOUNT
SAMPLE FORMAT 11
BASIC CONTRACT OR CONTRACT CHANGE (NOTE 1)
CONTRACT LEVEL WORK/BUDGET AUTHORIZATION DOCUMENT (NOTE 2)
MANAGEMENT RESERVE & UNDISTRIBUTED BUDGET LOGS.
INTERMEDIATE LEVEL WORK/BUDGET AUTHORIZATIONS (Note 3)
COST ACCOUNT WORK/BUDGET AUTHORIZATIONS (Note 4)
NOTES: 1. If tracking a change, highlight the revision made to the existing documentation.
2. Correlate to the Schedule Trace for period of performance.
3. Trace should track documentation for the selected cost account.
4. Budget values must match sample Formats 3 (WBS) and 4 (OBS).
5. Reference criteria items 2.d, 5.a, and 5.e.

MATERIAL MANAGEMENT TRACE
SAMPLE FORMAT 12



NOTES:
1. The contractor prepared trace should provide visibility into the material management process.
2. If possible, use the trace cost account in order to correlate this information with other formats in the report.
3. Reference criteria items 2.d, 3.g and 4.a.

DRAFT COST/SCHEDULE MANAGEMENT GUIDE
Version G
Appendix G

Cost/Schedule Control Systems Criteria (C/SCSC)

The contractor's management control systems will include policies, procedures and methods that are designed to ensure that they will accomplish the considerations reflected herein.

1. **Organization**

a. Define all authorized work and related resources to meet the requirements of the contract, using the contract work breakdown structure (WBS).

b. Identify the internal organizational elements and the major subcontractors responsible for accomplishing the authorized work.

c. Provide for the integration of the contractor's planning, scheduling, budgeting, work authorization and cost accumulation systems with each other, the contract work breakdown structure, and the organizational structure.

d. Identify the managerial positions responsible for controlling overhead (indirect costs).

e. Provide for integration of the contract work breakdown structure with the contractor's functional organizational structure in a manner that permits cost and schedule performance measurement for contract work breakdown structure and organizational elements.

2. **Planning and Budgeting**

a. Schedule the authorized work in a manner which describes the sequence of work and identifies the significant task interdependencies required to meet the development, production, and delivery requirements of the contract.

b. Identify physical products, milestones, technical performance goals, or other indicators that will be used to measure output.

c. Establish and maintain a time-phased budget baseline at the cost account level against which contract performance can be measured. Initial budgets established for this purpose will be based on the negotiated target cost. Any other amount used for performance measurement purposes must be formally recognized by both the contractor and the Government.

d. Establish budgets for all authorized work with separate identification of cost elements (labor, material, etc.).

e. To the extent the authorized work can be identified in discrete, short span work packages, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire cost account can not be subdivided into detailed work packages, identify the far-term effort in larger planning packages for budget and scheduling purposes.

f. Provide that the sum of all work package budgets, plus planning package budgets within a cost account equals the cost account budget.

g. Identify relationships of budgets or standards in work authorization systems to budgets for work packages.

h. Identify and control level-of-effort activity by time-phased budgets established for this purpose. Only that effort which cannot be identified as discrete, short span work packages or as apportioned effort may be classed as level-of-effort.

i. Establish overhead budgets for the total costs of each significant organizational component whose expenses will become indirect costs. Reflect in the contract budgets at the appropriate level the amounts in overhead pools that are planned to be allocated to the contract as indirect costs.

j. Identify management reserves and undistributed budget.

k. Provide that the contract target cost plus the estimated cost of authorized but unpriced work is reconciled with the sum of all internal contract budgets and management reserves.

3. **Accounting**

a. Record direct costs on an applied or other acceptable basis in a manner consistent with budgets in a formal system that is controlled by the general books of account.

b. Summarize direct costs from cost accounts into the work breakdown structure without allocation of a single cost account to two or more work breakdown structure elements.

c. Summarize direct costs from the cost accounts into the contractor's functional organizational elements without allocation of a single cost account to two or more organizational elements.

d. Record all indirect costs which will be allocated to the contract.

e. Identify the basis for allocating the cost of apportioned effort.

f. Identify unit costs, equivalent unit costs, or lot costs as applicable.

g. The contractor's material accounting system will provide for:

(1) Accurate cost accumulation and assignment of costs to cost accounts in a manner consistent with the budgets using recognized, acceptable costing techniques.

(2) Determination of price variances by comparing planned versus actual commitments.

(3) Cost performance measurement at the point in time most suitable for the category of material involved, but no earlier than the time of actual receipt of material.

(4) Determination of cost variances attributable to the excess usage of material.

(5) Determination of unit or lot costs when applicable.

(6) Full accountability for all material purchased for the contract, including the residual inventory.

4. **Analysis**

a. Identify at the cost account level on a monthly basis using data from, or reconcilable with, the accounting system:

(1) Comparison of budgeted cost for work scheduled and budgeted cost of work performed;

(2) Comparison of budgeted cost for work performed and actual (applied where appropriate) direct costs for the same work; and

(3) Variances resulting from the above comparisons between budgeted cost for work scheduled and the budgeted cost for work performed and between the budgeted cost for work performed and actual of applied direct costs, classified in terms of labor, material, or other appropriate elements together with the reasons for significant variances.

b. Identify on a monthly basis, in the detail needed by management for effective control, budgeted indirect costs, actual indirect costs, and cost variances with the reasons for significant variances.

c. Summarize the data elements and associated variances listed in 4.a.(l) and (2), above, through the contractor organization and work breakdown structure to the reporting level specified in the contract.

d. Identify significant differences on a monthly basis between planned and actual schedule accomplishment and the reasons.

e. Identify managerial actions taken as a result of criteria items 4.a. through 4.d., above.

f. Based on performance to date, on commitment values for material, and on estimates of future conditions, develop revised estimates of cost at completion for work breakdown structure elements identified in the contract and compare these with the contract budget base and the latest statement of funds requirements reported to the Government.

5. **Revisions and Access to Data**

a. Incorporate contractual changes expeditiously, recording the effects of such changes in budgets and schedules. In the directed effort prior to negotiation of a change, base such revisions on the amount estimated and budgeted to the functional organization.

b. Reconcile original budgets for those elements of the work breakdown structure identified as priced line items in the contract, and for those elements at the lowest level of the program work breakdown structure, with current performance measurement budgets in terms of changes to the authorized work and internal replanning in the detail needed by management for effective control.

c. Prohibit retroactive changes to records pertaining to work performed that will change previously reported amounts for direct costs, indirect costs, or budgets, except for correction of errors and routine accounting adjustments.

d. Prevent revisions to the contract budget base except for Government directed changes to contractual effort.

e. Document internally changes to the performance measurement baseline and notify expeditiously the procuring activity through prescribed procedures.

f. Provide the Contracting Officer and the Contracting Officer's authorized representatives with access to the information and supporting documentation necessary to demonstrate compliance with the cost/schedule control systems criteria.

MODEL MEMORANDUM OF AGREEMENT BETWEEN CAO AND THE COMPONENT PROGRAM MANAGER WITH RESPECT TO SURVEILLANCE OF INTEGRATED MANAGEMENT SYSTEMS

(IMPORTANT NOTE: This Memorandum of Agreement (MOA) is for guidance purposes only. It is intended to provide assistance in ascertaining that all of the appropriate aspects of Cost/Schedule Control Systems Criteria (C/SCSC) surveillance are encompassed in the preparation of a specific surveillance plan. It is not intended that this MOA provide a mandatory, required format in any respect.)

1. Purpose.

The purpose of this MOA is to establish the responsibilities of the (component program manager) and the (CAO) with respect to CPM surveillance under all contracts issued by the (component program manager). The agreement is based upon the policy and objectives of Chapter 6 of the Guide to Cost/Schedule Management and DLAH 5000.4, Section VI-10.

2. Scope.

This agreement describes the responsibilities and working relationships between the CAO and the program manager, and the activities necessary to assure continuing effective contractor control, use, and reporting of cost, schedule, and technical performance within the purview of the C/SCSC requirements. This agreement is applicable to all (component program manager) contracts performed at (Company), located in _____, which incorporate C/SCSC requirements.

3. Responsibilities.

a. Program Manager:

(1) Provide overall management of the acquisition program, including support of the surveillance team to assure continued contractor compliance with the C/SCSC.

(2) Insure that the CAO is kept fully informed of pertinent program events, to include appropriate communications between the program manager and the contractor. Program awareness is necessary so that the CAO may be fully effective and responsive in providing the required support at all times.

(3) Request any problem analysis required beyond the scope of this MOA. Such requests will be addressed to the CAO.

(4) Provide required specialized technical support needed for effective accomplishment of the surveillance program as requested.

b. CAO:

(1) Provide overall assurance that the contractor's integrated management system continues to meet the requirements of the C/SCSC.

(2) Develop and implement a surveillance plan which provides the details for accomplishing system surveillance and maintenance consistent with this MOA.

(3) Review and update the surveillance plan on a periodic basis, annually as a minimum, to ensure that it continues to provide a framework for effective C/SCSC surveillance.

(4) Provide specialized support or problem analysis as agreed to in this MOA.

(5) Keep the program manager advised of the status of contractor's integrated management system and C/SCSC related activities.

(6) Maintain records and submit reports as required by this MOA.

(7) Review, evaluate, and approve, within 60 days of submittal, proposed contractor integrated management system changes to assure C/SCSC compliance. Major changes and changes requiring interpretation of the criteria will be forwarded for review and coordination by the C/SCSC component focal point prior to ACO approval.

(8) Provide team member support, as available, for Demonstration Reviews, Subsequent Application Reviews, Integrated Baseline Reviews, and Staff Assistance Visits when requested by the procuring activity.

4. Surveillance Plan Framework. (Details to be mutually determined by the program manager and CAO in coordination with DCAA.) May include all or part of the following:

a. Monitor the contractor's corrective actions resulting from C/SCSC reviews.

b. Receive, evaluate, reconcile, and process external contractor performance and financial reports, e.g., Cost Performance Reports, Contract Funds Status Reports, Contractor Cost Data Reporting, etc. Verify that data is submitted in accordance with the reporting requirements.

c. Use external and internal reports in performing general CAS functions per FAR 42.3, e.g., progress payments or ECPs.

d. Assure continuity, consistency, quality, and usefulness of the system in operation. This includes the following:

(1) Assuring that the contractor's accepted integrated management system is, in fact, being used by the contractor to manage the program.

(2) Evaluating contractor generated changes to the system to ensure continued compliance with the criteria.

(3) Insuring that system discipline and integrity are maintained.

e. Performing periodic system reviews, evaluations, and tests to ensure maintenance of system integrity. Frequency of such efforts should be established in the surveillance plan and should ensure complete review of the system over a specified period of time. Frequency of total system review will be as mutually agreed with program manager.

f. Informing the contractor and program manager of any uncorrected deficiencies which affect overall validity of the contractor's system.

g. Performing periodic evaluations of contract estimates at completion. Generate, when appropriate, independent EACs for submission to the program office and higher headquarters.

5. Records Maintenance.

The CAO will establish and maintain a central file for all pertinent data and correspondence regarding the C/SCSC program. The CAO will assure that the file contains updated regulatory and guidance material pertaining to the program. The file, as a minimum, will contain copies of all correspondence with the contractor and program manager, system description, accepted changes to the system, memoranda of meetings, monthly surveillance reports/activities, reconciliations of appropriate reports from the Contract Data Requirements List, and deficiency situations requiring corrective actions. . Surveillance records shall be maintained until program completion and then forwarded for inclusion in the official contracts file.

6. Surveillance Review Meetings Between Program Manager, CAO, and DCAA.

(This section will provide for both scheduled and unscheduled joint meetings pertaining to the C/SCSC surveillance program.)

7. Terms of Agreement.

This agreement is effective upon signature by all parties. It is intended to remain in force for the duration of the specified contract(s). However, the terms of this agreement are subject to change at any time by mutual consent of the parties hereto.

APPROVED: APPROVED:

_____ _____

CAO Chief Component Program Manager

SURVEILLANCE TOOLS

A. Surveillance Plan structure. Paragraph 6-8b of this guide discusses factors to be considered when preparing a surveillance plan. Development of the plan should be coordinated with the DCAA FAO and the contractor. Below is listed a suggested outline for the plan. References to applicable portions of Chapter 6 have been included. . Additional guidance on structuring a surveillance plan is contained in DLAH 5000.4, the "One Book".

I. General

A. Purpose

- O provide detailed surveillance procedures.
- O accomplish systematic surveillance.
- O produce objective evidence of that surveillance.
- O may address relationship to contract surveillance.

B. Objective

- O see paragraph 6-2 of this Guide.

C. References

O This would normally include (1) this Guide; (2) the contractor's system description; (3) program peculiar procedures if applicable; (4) active MOAs; and, (5) the Advance Agreement if applicable.

D. Records

O see Part VI, Chapter 10 of the "One Book" for guidance on types of records to be maintained.

E. Reports

- O in accordance with the Memorandum of Agreement and paragraph 6-7.
- O include report subjects, distribution, and general content format, if required.

II. Responsibilities

A. General

- O see paragraphs 6-4b of this Guide and Part VI, Chapter 10 of the "One Book".

B. Contractor Performance Measurement CPM Monitor

O see paragraph 6-4b(2) of this Guide and Part VI, Chapter 10 of the “One Book” for typical Contractor Performance Measurement (CPM) Monitor responsibilities.

C. Subsequent sections should include responsibilities of all participants in the surveillance effort to include, but not be limited to, PST members, DCAA FAO, and the PMO. If the contractor has chosen to participate in a joint surveillance effort, include contractor personnel and their responsibilities.

III. General Procedures

A. Planning

O establishing the surveillance scope (para 6-4a).
O sample selection (para 6-9b.2).
O scheduling (para 6-9b(1)).

B. Conduct of Surveillance

O refer to paragraph 6-9b.

IV. Detailed Procedures

O tailor to the contractor's system (para 6-9b(2)(a)).
O address each subsystem or surveillance area (para 6-10).

B. Suggested surveillance questions. The following questions are considered basic to effective surveillance and should be expanded based on the concepts contained in the contractor's integrated management system description and procedures.

1. Organization. Periodically, conduct a review using questions similar to the following:

a. Is all the work required to accomplish contract objectives identified, planned, scheduled, and controlled, to the maximum extent practicable, within the CWBS?

b. Is the contract work successively divided within the WBS in a manner which represents the way the work is to be performed? At the lower levels of the WBS, are cost accounts and work packages defined for the planning and control of cost and schedule?

c. Is the contractor incorporating cost performance data from subcontractors into the CWBS and associated reporting systems being used?

d. Are Cost Accounts:

(i) The responsibility of a single organizational unit?

(ii) Correlated with the CWBS?

e. Are work packages the responsibility of a single performing organization?

2. Scheduling. Periodically, conduct a review using questions similar to the following:

a. Does the contractor maintain a schedule which describes the sequence of work and identifies the interdependencies required for development, production, and delivery requirements of the contract?

b. How is the contractor's scheduling system integrated with the budgeting and cost accumulation systems for the various levels of the CWBS?

c. Are the scheduling systems and budgetary documents used by the contractor properly integrated and traceable from the detail to the summary level?

d. Are the indicators used in depicting planned and actual status accurate representations of the milestone, start, or completion dates of the effort they serve to identify?

e. Are changes to the schedule controlled as defined in the system description?

3. Work Authorization & Budgeting. Periodically, conduct a review using questions similar to the following:

a. Are the work authorization, planning, and budgeting processes defined and traceable to the work package level?

b. Are Cost Accounts:

(i) Adequately described and clearly defined and have start and end dates?

(ii) Established (when appropriate) that segregate LOE from discrete and apportioned work for cost performance measurement purposes?

(iii) Planned by element of cost; i.e., labor, material, other direct charges?

c. Are Work Packages:

(i) Associated with work authorizations and identifiable within the contractor's basic planning documentation?

(ii) Adequately described and clearly defined with scheduled start and end dates?

(iii) Reasonable in duration or with sufficient value milestones so as to minimize subjective work-in-process assessments?

(iv) Established in terms of dollars, man-hours, or other measurable units?

(v) Properly classified as discrete or apportioned, and separated from LOE?

d. Does the contractor budget and earn value in accordance with the accepted system description?

e. Is BCWS time-phased to support contractual efforts? Are assigned resources reasonable considering the scope of work to be accomplished?

f. Are the cost account values and schedules traceable and reconcilable from work packages to various summary levels?

g. Where management reserves are used, are they identified and controlled?

h. Does the aggregate of all direct budgets, indirect budget allocations, UB, and MR equal the contract target cost plus the estimated cost for authorized work not yet priced? If not, is the baseline acceptable and has proper approval for baseline change been obtained?

i. Are baseline adjustments relative to economic price adjustments properly and separately identified?

4. Accounting. Periodically, conduct a review using questions similar to the following:

a. Does ACWP reconcile with the contractor's books and records at selected levels?

b. Are direct charges summarized from the lowest point of cost accumulation without intermediate allocations?

c. Are labor, material, and other direct costs accurate and charged to the proper cost account?

d. Are indirect rates applied as recommended by the DCAA FAO and CAO?

e. Are the burdens charged to the contract based on either actual costs or approved billing rates and are they periodically verified? If billing rates are used, determine how adjustments are made.

f. Does the contractor operate a well-disciplined and consistent system in accumulating and determining the value of BCWS, BCWP, and actual costs?

5. Indirect Cost Management. Analysis of a contractor's management of indirect cost should be performed periodically. Questions requiring answers might include the following:

a. Are indirect cost pools clearly identified and controlled as defined in the system description and/or accounting manuals.?

b. Are indirect costs planned and budgeted on a time-phased basis coinciding with established accounting periods?

c. Are indirect budgets established on a facility-wide basis commensurate with firm and potential business?

d. Are the facility-wide indirect budgets updated in a timely manner to reflect changes in the projected business base?

e. Are indirect costs and variances from budgeted amounts analyzed by management personnel at the proper level and is corrective action taken in a timely manner when necessary?

f. Do the indirect rates used to compute the contract indirect cost estimates-to-complete properly reflect historical experience, economic escalation, anticipated business volume, and appropriate financial planning for the period of contract performance?

g. Are projected indirect rates revised in a timely fashion to reflect changing workload projections, etc., to provide an accurate EAC?

6. Analysis. Periodically, conduct a review using questions similar to the following:

a. Is the contractor's calculation of BCWP accurate?

b. Does the system identify significant variances?

c. Do the narrative descriptions of significant variances identify causes and proposed, valid solutions?

d. Do forecasts of costs at completion include consideration of existing variances?

e. Are variances being reported based on the established thresholds?

f. Does the variances analysis in the problem analysis section of the external performance measurement report reconcile with the contractor's internal variance analysis reports at applicable levels?

g. Is detailed cost account analysis of significant variances performed, and is proper management action, if needed, taken as a result?

h. Is the EAC updated periodically to reflect current performance and management insight?

i. Do estimated resources required (labor, material, etc.) to perform the remaining work appear reasonable?

j. Are the appropriate projected labor and overhead rates being used in the EAC?

k. Does the reported EAC agree with the EAC developed and used by the contractor?

l. Are corrective action plans implemented and periodically evaluated?

7. Revisions. Periodically conduct a review using questions similar to the following:

a. Does the contractor's change control system provide the information required for tracing the change through the entire planning system to determine the following:

(i) Effect on work authorization.

(ii) Effect on budgets and schedules.

(iii) Effect on the EAC.

b. Are changes to the performance measurement baseline made only as a result of contractual redirection, internal replanning, or use of MR?

c. Are these changes implemented in a timely manner, controlled, documented, traceable and reported as required by the system description ?

d. Are internally generated changes that affect the total time sequencing beginning and end dates of cost accounts, reviewed and evaluated?

e. Are procedures for adding, modifying or canceling work packages followed?

8. Material Management.

a. Are the responsibilities for material requirements determination, procurement, inventory control, issue, and accounting being carried out as defined in the system description?

b. Is the scheduling of planned values for material consistent with the monthly time-phasing of cost accounts?

c. Are material budgets established at the cost account level and based on defined quantities and estimated prices?

d. Are the budgets for contract material procurement traceable to the material portion of the cost account budgets?

e. Are material charges recorded at the point of usage or at another acceptable point but not earlier than point of receipt?

f. Are material requirements defined in sufficient detail to facilitate identification, pricing, and procurement of material?

g. Are material commitments and expenditures compared with the applicable material budgets? Is the EAC updated, as appropriate, based on these comparisons?

h. Are variances between budgets, commitments, and expenditures analyzed to determine the cause and required corrective action?

l. Does material planning support the manufacturing schedule?

j. Is the cost of material reported as incurred in the same period as that in which BCWP is earned for the material?

k. Is the residual material appropriately projected in the estimate at completion?

l. Is the excess usage of material evaluated on a timely basis and appropriately reflected in the estimate at completion?

9. Subcontract Management.

a. Are the subcontractor tasks clearly defined and identified to the appropriate CWBS element?

b. Are the subcontractors monitored by the prime contractor as described by the system description?

c. Does the prime contractor have acceptable visibility of subcontractor performance?

d. Does the method of incorporating subcontractor performance data into the prime contractor's integrated management system provide for accurate, traceable, cost performance measurement?

Appendix J

Glossary of Terms

The following definitions and acronyms appear within this document.

1. Actual Cost of Work Performed (ACWP). The costs actually incurred and recorded in accomplishing the work performed within a given time period.
2. Actual Direct Costs (ADC). Those costs identified specifically with a contract, based upon the contractor's cost identification and accumulation system as accepted by the cognizant Defense Contract Audit Agency (DCAA) representatives (See Direct Costs).
3. Administrative Contracting Officer (ACO). The individual within the Contract Administration Office (CAO) responsible for ensuring that the functions described in DFAR 242.302 are completed by the contractor in accordance with the terms and conditions of the contract.
4. Advance Agreement (AA). An agreement between the contractor and the Contract Administration Office concerning the application of an approved integrated management system to contracts within the affected facility.
5. Air Force Material Command (AFMC). Lead Air Force organization for the evaluation and implementation of C/SCSC.
6. Allocated Budget. (See Total Allocated Budget)
7. Applied Direct Costs (ADC). The actual direct costs recognized in the time period associated with the consumption of labor, material, and other direct resources, without regard to the date of commitment or the date of payment. These amounts are to be charged to work in-process when any of the following takes place:

a. Labor, material, or other direct resources are actually consumed.
b. Material resources are withdrawn from inventory for use.
c. Material resources are received that are uniquely identified to the contract and scheduled for use within 60 days.
d. Major components or assemblies that are specifically and uniquely identified to a single serially numbered end item are received on a line flow basis.

8. Apportioned Effort (AE). Effort that by itself is not readily divisible into short-span work packages but which is related in direct proportion to measured effort.
9. Army Material Command (AMC). Lead Army organization for the evaluation and implementation of C/SCSC.
10. Assistant Secretary of the Navy (Research, Development and Acquisition) (ASN(RD&A)). The lead Navy organization for the evaluation and implementation of C/SCSC.
11. Authorization to Proceed (ATP). Official authority for the contractor to begin work. Usually issued by the procuring contracting officer.
12. Authorized Work. That effort which has been definitized and is on contract plus that effort for which definitized contract costs have not been agreed to but for which written authorization has been received.
13. Baseline. (See Performance Measurement Baseline).
14. Bill of Material (BOM). A listing of material items required to complete the production of a single unit. When actual or expected prices are applied, it becomes the Priced Bill of Material (PBOM).
15. Budget at Completion (BAC). The sum of all budgets established for the contract. (See Total Allocated Budget).

16. Budgeted Cost for Work Performed (BCWP). The sum of the budgets for completed work packages and completed portions of open work packages, plus the applicable portion of the budgets for level of effort and apportioned effort.

17. Budgeted Cost for Work Scheduled (BCWS). The sum of the budgets for all work packages, planning packages, etc., scheduled to be accomplished (including in-process work packages), plus the amount of level of effort and apportioned effort scheduled to be accomplished within a given time period.

18. Contract Budget Base (CBB). The negotiated contract cost plus the estimated cost of authorized unpriced work.

19. Contractor. An entity in private industry which enters into contracts with the Government. In this guide, the word also applies to Government-owned, Government-operated activities which perform work on major defense programs.

20. Contract Administration Office (CAO). The organization assigned responsibility for ensuring that the contractor complies with the terms and conditions of the contract.

21. Contract Data Requirements List (CDRL). A compilation of all data requirements which the contractor is obligated to submit to the government.

22. Contract Work Breakdown Structure (CWBS). The complete work breakdown structure for a contract, it includes the DoD approved work breakdown structure for reporting purposes and its discretionary extension to the lower levels by the contractor, in accordance with MIL-STD 881(latest version) and the contract work statement. It includes all the elements for the hardware, software, data or services which are the responsibility of the contractor.

23. Contractor Performance Measurement (CPM) Monitor. That person within the CAO assigned responsibility for ensuring the proper and continuing implementation of the approved integrated management system on contracts where its application is required.

24. Cost Account (C/A). A management control point at which actual costs can be accumulated and compared to budgeted cost of work performed. A cost account is a natural control point for cost/schedule planning and control since it represents the work assigned to one responsible organizational element on one contract work breakdown structure (CWBS) element.

25. Cost Accounting Standards (CAS). Established by the Cost Accounting Standards Board (CASB) to ensure consistent and proper accounting for direct and indirect costs applied to government contracts.

26. Cost Performance Report (CPR). A contractually required report, prepared by the contractor, containing information derived from the internal system. Provides status of progress on the contract.

27. Cost/Schedule Control Systems Criteria (C/SCSC). The set of 35 statements established by DoDI 5000.2, Part 11, Section B, which define the parameters within which the contractor's integrated cost/schedule management system must fit.

28. Cost/Schedule Status Report (C/SSR). A performance measurement report established to capture information on smaller contracts.

29. Defense Contract Audit Agency (DCAA). The organization tasked with monitoring a contractor’s design and implementation of an acceptable accounting system.

30. Demonstration Review (Demo). The review conducted to provide initial verification that a contractor’s integrated management system is in compliance with the C/SCSC.

31. Direct Costs. Any costs that may be identified specifically with a particular cost objective. This term is explained in the Federal Acquisition Regulation (reference (ff)).

32. Estimate at Completion (EAC). Actual direct costs, plus indirect costs allocable to the contract, plus the estimate of costs (direct and indirect) for authorized work remaining.

33. Estimate to Complete (ETC). That portion of the EAC that addresses total expected costs for all work remaining on the contract.

34. Extended Subsequent Application Review (ESAR). A review conducted to extend a previously accepted system from one contractor facility to another, one contract phase to another (i.e., development to production), or, it can extend the validation of a previously accepted system description to a significantly revised system description when major processes have been modified.

35. Indirect Costs. Costs which, because of their incurrence for common or joint objectives, are not readily subject to treatment as direct costs. This term is further defined in FAR 31.203.

36. Integrated Management System (IMS). The contractor's system and related sub-systems implemented on major contracts to establish a relationship between cost, schedule and technical aspects of the contract, to measure progress, accumulate actual costs, analyze deviations from plans, forecast completion of contract events and incorporate changes to the contract in a timely manner.

37. Internal Replanning. Replanning actions performed by the contractor for remaining effort within the recognized total allocated budget.

38. Letter of Delegation (LOD). A document assigning contract administration functions from one CAO to another, usually in a prime-subcontractor relationship.

39. Level of Effort (LOE). Effort of a general or supportive nature which does not produce definite end products.

40. Management Reserve (MR). An amount of the total allocated budget withheld for management control purposes rather than designated for the accomplishment of a specific task or set of tasks. It is not a part of the Performance Measurement Baseline.

41. Negotiated Contract Cost (NCC). The estimated cost negotiated in a cost-plus-fixed-fee contract or the negotiated contract target cost in either a fixed-price incentive contract or a cost-plus-incentive-fee contract.

42. Organizational Breakdown Structure (OBS). A functionally oriented division of the contractor's organization established to perform the work on a specific contract.

43. Overhead. (See Indirect Cost definition.)

44. Performance Measurement Baseline (PMB). The time-phased budget plan against which contract performance is measured. It is formed by the budgets assigned to scheduled cost accounts and the applicable indirect budgets. For future effort, not planned to the cost account level, the performance measurement baseline also includes budgets assigned to higher level CWBS elements, and undistributed budgets. It equals the total allocated budget less management reserve.

45. Performing Organization. A defined unit within the contractor's organization structure, which applies the resources to perform the work.

46. Planning Package (P/P). A logical aggregation of work within a cost account, normally the far-term effort, that can be identified and budgeted in early baseline planning, but is not yet defined into work packages.

47. Procuring Activity. The subordinate command to which the Procuring Contracting Officer (PCO) is assigned. It may include the program office, related functional support offices, and procurement offices.

48. Replanning (See Internal Replanning).

49. Reprogramming. Replanning of the effort remaining in the contract, resulting in a new budget allocation which exceeds the contract budget base.

50. Responsibility Assignment Matrix (RAM). A depiction of the relationship between the Contract Work Breakdown Structure elements and the organizations assigned responsibility for ensuring their accomplishment.

51. Responsible Organization. A defined unit within the contractor's organization structure which is assigned responsibility for accomplishing specific tasks.

52. Significant Variances. Those differences between planned and actual performance which require further review, analysis, or action. Thresholds should be established as to the magnitude of variances which will require variance analysis, and the thresholds should be revised as needed to provide meaningful analysis during execution of the contract.

53. Subsequent Application Review (SAR). A review conducted to verify the implementation of a previously accepted system to a new contract.

54. Summary Effort Control Package (SECP). The summary level of the WBS and/or OBS where budgets are held for far-term efforts, not able to be identified to functional and/or WBS entities at the cost account level.

55. Total Allocated Budget (TAB). The sum of all budgets allocated to the contract. Total allocated budget consists of the performance measurement baseline and all management reserve. The total allocated budget will reconcile directly to the contract budget base. Any differences will be documented as to quantity and cause.

56. Undistributed Budget (UB). Budget applicable to contract effort which has not yet been identified to CWBS elements at or below the lowest level of, reporting to the Government.

57. Variance at Completion (VAC). The difference between the total budget assigned to a contract, WBS element, Organizational entity or cost account and the estimate at completion. It represents the amount of expected overrun or underrun.

58. Work Breakdown Structure (WBS). A product-oriented family tree division of hardware, software, services, and other work tasks which organizes, defines, and graphically displays the product to be produced as well as the work to be accomplished to achieve the specified product.

a. Project Summary Work Breakdown Structure (PWBS). A summary work breakdown structure (WBS) tailored to a specific defense material item by selecting applicable elements from one or more summary WBSs or by adding equivalent elements unique to the project in accordance with MIL-STD 881 (latest revision).

b. Contract Work Breakdown Structure (CWBS). The complete WBS for a contract, developed and used by a contractor within the guidelines of MIL-STD 881 (latest revision) and according to the contract's work statement. The CWBS includes the levels specified in the contract and the contractor's extension.

59. Work Package (W/P). Detailed short-span jobs, or material items, identified by the contractor for accomplishing work required to complete the contract. A work package has the following characteristics:

a. It represents units of work at levels where work is performed.

b. It is clearly distinguished from all other work packages.

c. It is assigned to a single organizational element.

d. It has scheduled start and completion dates and, as applicable, interim milestones, all of which are representative of physical accomplishment.

e. It has a budget or assigned value expressed in terms of dollars, man-hours, or other measurable units.

f. Its duration is limited to a relatively short span of time or it is subdivided by discrete value milestones to facilitate the objective measurement of work performed.

g. It is integrated with detailed engineering, manufacturing, or other schedules.

60. Work Package Budgets. Resources which are formally assigned by the contractor to accomplish a work package, expressed in dollars, hours, standards or other definitive units.

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