AUSTRALIAN DEFENCE STANDARD

DEF(AUST)5657

AUSTRALIAN COST SCHEDULE CONTROL SYSTEMS CRITERIA;

IMPLEMENTATION GUIDE

STANDARD

MARCH, 1994

Prepared by the Project Management Systems Section, Department of Defence, Canberra.

TABLE OF CONTENTS

CHAPTER 1. OVERVIEW

1.1. PREFACE

1.1.1. The Department of Defence is involved in a number of large acquisition projects which are highly visible and of major significance to Australia's industrial base. It is clearly important that the Department and Australian Industry manage these projects well.

1.1.2. An important element in successful management is the effective control of cost and schedule aspects of contracts. The Cost Schedule Control Systems Criteria (CSCSC-The Criteria) approach to this area of project management, which was introduced in the USA by the Department of Defense in the 1960s, has been widely adopted elsewhere and was formally introduced in Australia in 1989. This approach requires selected major contractors to have performance management control systems that are consistent with standards laid down by Defence. This requirement applies to the contractor's management control systems not just to specific contracts.

1.1.3. Contractor conformance with the Criteria is in the best interests of both Defence and its contractors. This Standard describes the processes whereby the Department mandates the requirement in the context of a specified contract, the procedures for implementation into contractor's systems, demonstration of compliance to Defence, and subsequent maintenance.

1.1.4. The key features of the implementation processes addressed in this document are:

a. Determination by Defence to apply the requirement in the context of a specific equipment contract.

b. Evaluation of a prospective contractor's systems as part of a source selection process.

c. Implementation by the contractor and review by Defence, following contract award, comprising:

   1) Implementation Visit

   2) Baseline Review

   3) Readiness Assessment

   4) Formal Documentation Review

   5) Acceptance and Validation of contractors' systems

d. Ongoing system maintenance by the contractor and surveillance by Defence.

1.1.5. **Effect on Contracts.** Contractors' performance management control systems should be designed to facilitate the effective execution of any contract. Necessary upgrading of those systems and conduct of the Demonstration Review process is not to hamper contractors meeting contractual obligations. Similarly, the application of the Criteria does not vary the terms of any other contract.

1.1.6. The Criteria are designed to test whether a contractor has effective integrated systems in place. It is not expected that CSCSC compliance will necessarily introduce any new concepts into a contractor's management systems, except perhaps the concept of earned value.

1.1.7. **Effect on Payment.** The Criteria are not intended as a payment system and nothing in the Criteria is intended to affect the basis on which costs are reimbursed or progress payments are made. Earned value may, or may not, be a reasonable basis for payments to a contractor depending upon the contractor's system design and the nature of the contract. Therefore, payments to a contractor is an issue that should be separately addressed in the contract along with any Defence requirements for funds reports and forecasts.

1.2. INTRODUCTION

1.2.1. Australian Defence Standard DEF(AUST) 5655 establishes the Criteria for contractors'

performance management control systems for specified contracts and provides guidelines for their application. The Department of Defence may, depending on anticipated contract price and perceived technical, cost or schedule risk, require contractors to use management control systems which meet the Criteria.

1.2.2. This document is intended to provide guidance and procedures for the implementation of the Criteria. It is a basis for assisting both Defence and contractors in understanding the Criteria and assessing the compliance of contractors' systems with the Criteria.

1.2.3. Requirements for management systems and progress reporting for major contracts which are not selected for application of the Criteria are addressed in DEF(AUST) 5658, Cost Schedule Status Reporting Specification and Implementation Guide.

1.2.4. **Interpretation**. Within this guide "Defence" refers to the Department of Defence of the Commonwealth of Australia. For contracts where the Commonwealth is not the client, reference to the Commonwealth or its agent should be interpreted as the client and or its agent. The term "performance" means Cost Schedule performance. Any word importing a gender includes the other gender.

1.3. DEPARTMENTAL AUTHORITY

1.3.1. Within Defence, responsibility for implementation of the Criteria is vested in the First Assistant Secretary, Capital Equipment Program (FASCEP). The Director of Project Management Systems (DPMS) acts as a focal point within Defence and is responsible to FASCEP for policy advice and carriage of matters not otherwise delegated. FASCEP delegates responsibility for acceptance or validation of contractors' systems to an authority known as the 'Review Director'; this is normally DPMS or a nominated representative. Following acceptance, FASCEP normally delegates responsibility for ongoing surveillance in respect of particular contracts to the relevant Project Authority.

1.3.2. The Criteria, per se, are not negotiable. However, problems can arise in their interpretation or specific aspects of implementation. Such misunderstandings can be normally avoided or minimised by discussion between the relevant authority in Defence and contractors.

1.3.3. **Supplemental Guidance.** Instructions to supplement this Standard may be issued by FASCEP to provide additional guidance. These may be promulgated as amendments.

1.4. CRITERIA OBJECTIVES

1.4.1. The objectives of the Criteria are to ensure that:

a. contractors use effective internal management control systems, and

b. Defence can rely on timely and auditable data produced by those systems for determining contract status.

1.4.2. When management control systems acceptable to both the contractor and Defence are applied at a given contractor's facility, the systems will provide a common source of information for all management levels in Defence and the contractor's organisation.

1.5. THE CRITERIA CONCEPT

1.5.1. No single set of management control systems will meet every Defence and contractor management requirement for performance measurement. Due to variations in organisations, products, and working relationships, it is not feasible to prescribe a universal system for cost and schedule controls. Therefore, Defence has adopted an approach which simply defines the Criteria that contractors' management control systems must meet.

1.5.2. The Criteria are not a system! They are a set of Criteria designed to identify the characteristics of an adequate contractor cost and schedule management control system. Changes to a contractor's

existing management system are required only to the extent that the existing system is inconsistent with the Criteria. The Criteria do not purport to address all of a contractor's management needs. Subjects such as cash or funds management and the need for day-to-day or week-to-week internal control (eg., expenses versus payments, informal communications, progress/technical reviews, and similar management tools) are not covered. These management tools are important and are not intended to be replaced by the Criteria requirements.

1.5.3. **Interpretation.** The Criteria are intended to be general, to permit their use in evaluating contractors' management control systems for development, construction, and production contracts. Since these types of contracts tend to differ significantly, it is impossible to provide detailed guidance which will apply specifically in all cases. Users of the Criteria should be alert for areas in which distinctions in detailed interpretation seem appropriate or reasonable, whether or not they are specifically identified. Use of the Criteria must be based on common sense. This means that interpretations must also be based on common sense and that they must be practical and sensitive to the overall requirements for performance measurement.

1.5.4. **Flexibility**. By applying the Criteria, rather than prescribing specific management control systems, contractors have the latitude and flexibility necessary to meet their individual management needs. This approach allows contractors to use existing management control systems, or other systems of their choice, provided the chosen system is consistent with the Criteria.

1.5.5. **Earned Value.** The Criteria require that actual work progress be quantified through earned value, which is an objective measure of how much work has been accomplished on the contract. Without earned value, one can only compare actual expenditure against planned expenditure with no objective indication of how much of the planned work was actually accomplished. The Criteria require the contractor to plan, budget, and schedule work in time-phased, planned-value increments which constitute a performance measurement baseline (time-phased budget). As work is accomplished, value is earned on the same budget-dollar basis. Earned value compared with planned value provides a measure of work accomplishment against plan, referred to as schedule variance.

1.5.6. The contractors' accounting systems must accumulate the actual cost of work performed. That cost is compared with earned value, providing a cost variance for the work accomplished and an indication of whether the work is over/under-running its plan. Planned value, earned value, and actual cost data provide an objective measure of performance, enabling trend analyses and evaluation of estimates of cost at completion at all levels of the contract.

1.5.7. The Criteria require information to be broken down by product as well as by organisation or function. Measurement of accomplishment against plan is required at relatively low levels with summary reporting to higher management. Discipline is required in reporting variances, their analysis and determining appropriate corrective action.

1.5.8. The extent of effort needed for a contractor to meet these requirements depends on how much change, if any, is needed for the existing systems to meet the Criteria.

1.6. MANAGEMENT'S DATA NEEDS

1.6.1. There are no specific external reporting requirements in the Criteria. Reporting requirements are usually product and contract specific and will be negotiated separately and specified in each contract. However, the Criteria are intended to facilitate performance reports which are of fundamental importance to ensure visibility of contractors' progress. To achieve this in selected contracts, the Project Authority will need to receive and review cost and schedule performance data. This data must:

a. relate time-phased budgets to specific contract tasks and/or statements of work;

b. indicate work progress;

c. properly relate cost, schedule, and technical accomplishment;

d. be valid, timely, and auditable;

e. supply Defence with aggregate information summarised at an appropriate level; and

f. be derived from the same internal management control systems used by the contractor to manage the contract.

1.7. PERFORMANCE REPORTING

1.7.1. Effective management of a contract does not, of itself, require any particular form of performance reporting. Various forms of report may be acceptable as long as the need for contract status information by product and functional organisation is satisfied.

1.7.2. The Criteria require that contractors establish and use effective internal management control systems. Performance reports from these systems are normally submitted monthly and are intended to report summary information from the contractor's internal cost and schedule control system. Summary reporting suffices because the Criteria discipline assures that the contractor uses objective performance measurement information to manage at levels where work is performed, allowing management attention to be directed to areas where significant problems are indicated. The preferred format of these reports is the Cost Performance Report (CPR). ANNEX G to this Guide contains examples of the typical data reported on each of the CPR formats. These are designed to facilitate reporting from Criteria compliant systems and comprises five formats to provide:

a. cost and schedule performance data broken down by both product (work breakdown structure) and contractor responsible organisation;

b. baseline information; and

c. planned versus actual manpower usage and problem analysis (the problem analysis section is also used to reconcile the dollar-based CPR schedule information and actual time-phased schedules).

1.7.3. When a problem surfaces in a report, progressively more detailed data may be requested until the cause of the problem is identified. It is important to recognise that reporting frequency, levels of detail, variance analysis thresholds, and formats are all subject to negotiation, and adjustments may be proposed by either party during contract execution (see ANNEX C).

1.7.4. In addition to earned value, two important reporting data elements in the CPR are the estimated cost at completion (EAC) and management reserve (MR).

a. **EAC** - The EAC is of prime interest and must be updated periodically by the contractor using procedures approved during system acceptance. EAC analysis should include evaluation of cost and schedule variance trends in concert with information from other management tools.

b. **MR** - MR is an amount of the contract budget base set aside by the contractor for management control purposes, such as performance of unanticipated tasks that are within the scope of the contract. MR is not a contingency fund and may neither be eliminated from contract prices by Defence nor used to absorb the cost of contract changes.

1.7.5. **Report Timeliness.** Reporting formats and timing will be specified in the contract. The timing is usually a compromise between constraints on the contractor's systems and time to check and analyse data, and the Project Authority's need for timely information. The negotiated timing should be appropriate for their intended purposes--to provide an objective indication of contract status, a basis for observing trends, and formal communication between the contractor and Defence. Modern communications and techniques should facilitate shorter periods than the 25 days historically specified in the US. Negotiation may result in shorter submission time, using such techniques as submitting the data before analysis, or substituting the contractor's internal report formats, provided they contain adequate data in a form suitable for use by Defence.

1.7.6. **Use of Criteria Reports**. Performance reports are no substitute for day-to-day contract management or communication between the contractor and Defence. Such reports may not reveal many new problems, but they are valuable for confirming and quantifying the problems reported by the contractor. For example, the performance reports would confirm a previously anticipated

schedule slippage or previously known technical problem, allowing analysis of the effect on current and future contract performance. Defence may also use performance reports to monitor cost and schedule variance trends and to project the trends to contract completion to determine the validity of the EACs and forecasted completion dates.

1.7.7. **Funds Reporting**. In certain contracts, performance reports may be directly related to a contractor's funds (cash) requirements. Items such as mobilisation payments (which should not be a basis for planning and earning value) and the timing of payment for material (which may be very different to the timing of earned value for that material) can cause legitimate and significant differences between the two. When necessary, Defence will require separate funds status and forecasting reports from the contractor.

1.8. IMPLEMENTATION PROCESS SUMMARY

1.8.1. When a request for tender or request for proposal specifies application of the Criteria, an element in the evaluation of the responses to such requests will be the prospective contractor's proposed systems for planning and controlling contract performance. The prospective contractor will describe the systems to be used to permit evaluation for consistency with the Criteria.

1.8.2. The responsibility for developing and applying specific performance management control system procedures which comply with the Criteria rests with the contractor. Defence approval of this system is a requirement of a contract which specifies application of the Criteria. Where a contractor's system does not comply with the Criteria, Defence will require adjustments as necessary to achieve compliance.

1.8.3. **Baseline Establishment**. An initial and critical step in applying Criteria to a contract is to establish the baseline for performance measurement (Performance Measurement Baseline - PMB). The work by the contractor to establish a baseline may be substantial, but must not be avoided or delayed because valid performance data depend on it. It should be planned and developed during the tender phase and completed as soon as possible after contract award.

1.8.4. **Baseline Implementation.** When the contract is awarded, a contractor's internal documentation must be updated and work planned in greater detail. Work authorisation, schedules, and budgets must be negotiated between the contractor's program manager and the various functional organisations and managers who are responsible for accomplishing the work. This process can be time consuming, but it is necessary to develop a baseline that is meaningful for reporting and control purposes. Some additional time may also be needed to verify the data produced after the baseline is finalised.

1.8.5. **PMB/Schedule Cushion.** The PMB represents the contractor's internal work plan, the schedule, expressed in dollar terms, for performing the contract. It must be clearly relatable to any network or other scheduling tool used for planning and monitoring. It may allow a cushion with respect to the contract delivery schedules. These cushions (or set-back schedules) anticipate typical problems such as late vendor deliveries and rework. If not understood, set-back schedules can cause confusion because a negative schedule variance might not affect contract deliveries if the cushion can absorb the delay.

1.8.6. **Review Process.** At the effective date of the contract, the contractor is required to commence a Review Process. The objective is to demonstrate to a Defence Criteria Review Team the effective application of the management control systems in planning and controlling the work under the contract and that the systems are consistent with the Criteria.

1.8.7. **Validation.** Reviews are conducted by a Review Director appointed by FASCEP. Following successful review, and subject to the concurrence of the Project Authority for the contract concerned, a recommendation for the acceptance of the contractor's management control system by Defence will be made by the Review Director to the Deputy Secretary, Acquisition and Logistics (DEPSEC (A&L)). The initial acceptance constitutes "validation". Validation is universally accepted within the Australian and United States' Departments of Defence.

1.8.8. **Types of Demonstration.** Depending on the work being performed, a comprehensive review may not always be possible. Where necessary, a review will be conducted, for research and development, or demonstration for production work, as appropriate.

1.8.9. **SAR.** Shorter and less comprehensive Subsequent Application Reviews (SARs) are conducted for follow-on contracts of the same or similar type requiring compliance with the Criteria. The duration and depth of the SAR is determined by Defence and is dependent upon the degree of change in the follow-on contract circumstances from those of the original demonstration.

1.8.10. **Disputes/Appeals.** Differences between Defence and the contractor in interpretation or application of the Criteria which cannot be resolved by the Review Director or Project Authority (depending on whether the system is under review or surveillance) may be referred to FASCEP for adjudication. Participants in an appeal will have the opportunity to table all appropriate information required to support their positions. Pending resolution of appeals during a review, the Review Director will continue assessment of the contractor's compliance with the Criteria or the contractor's System Description, as appropriate.

1.8.11. **Failure to Comply.** In extreme cases, for example where a contractor has failed to maintain a previously accepted system and fails to take action to restore it to compliance with the Criteria, FASCEP may consider withdrawing or suspending acceptance of the contractor's management system. When such a situation occurs, Defence will advise the contractor to show cause within a reasonable period (nominally, 30 days) why the acceptance should not be withdrawn. If the contractor disagrees with this position, then the contractor may appeal to DEPSEC (A&L). However, if the contractor does not respond satisfactorily, or appeal, system acceptance may be withdrawn or suspended. Once system acceptance has been withdrawn or suspended, the contractor may not claim in future tender/proposal responses to have an accepted system until a new letter of acceptance has been issued. Additionally, if the terms and conditions of the contract permit, all, or portions of, progress payments may be withheld pending satisfactory resolution.

1.8.12. **Process Summary.** This Guide contains general procedures which may be adapted to specific situations as they arise. Details for each implementation will be consistent with the guidance contained herein. A matrix summarising typical actions is provided in FIGURE 1-1.

Typical CSCS Lifecycle Process		Action Agency		
		PROJECT AUTHORITY	**REVIEW DIRECTOR**	**CONTRACTOR**
1.	Criteria specified in RFT.	✔	✔	
2.	Description of system submitted in proposals.			✔
3.	Evaluation of System Description in proposals.	✔	✔	
4.	Tender Evaluation Board considers findings of evaluation review.	✔		
5.	Criteria requirements in contract.	✔	✔	
6.	Review Team Organised .	✔	✔	✔
7.	Implementation Visit/Readiness Assessment/Demonstration, Baseline Reviews.			✔
8.	Demonstrates performance management control systems.			✔
9.	Determines compliance.		✔	
10.	Official acceptance. (**NOTE 1**)		✔	
11.	Continuous surveillance.	✔		
12.	Continuous operation of systems meeting the Criteria.			✔

NOTE 1: Official Acceptance is by the Deputy Secretary, Acquisition & Logistics.

CHAPTER 2. GENERAL INFORMATION

2.1. GENERAL

2.1.1. **Purpose.** In Australia the Criteria were introduced as much in the interest of improving the standard of management in Australian Industry as for ensuring the accuracy of reports to Defence. Hence system compliance is important as an end in itself and is not justified solely on quality of reports to Defence. Even when earned value based reporting may not be mandated, it is expected that the management control systems will be fully utilised for effective internal reporting.

2.1.2. **Consistency with the USA Criteria.** The Criteria required for Defence contracts are the same as those used by the USA Department of Defense (DoD). They are intended to achieve the same ends but minor variations occur because of the different environment in which they are applied.

2.1.3. **Criteria Application.** Decisions on the application of the Criteria will be made before tenders are sought. The decisions may be influenced by a range of factors including anticipated price, perceived technical and/or schedule risk, strategic importance, or the critical nature of the contract. Price guidelines are contained in DEF(AUST)5655. Flow-down of the Criteria from prime contractors to subcontractors will be negotiated with the prime utilising the same factors and guidelines.

2.1.4. **Criteria Relationship to Contract.** It is important to understand that the Criteria are applied to the contractor's systems as implemented on specific contracts; not to a contract. Furthermore, it will be commonplace for a contractor to use its compliant systems to manage more than one contract at a time. The application of Criteria affects facets of the contractor's systems that are not directly concerned in the execution of any one contract. For example, the Criteria concerning overhead cost management apply to the whole of the company's operations.

2.1.5. **Contract as a Pre-condition for Demonstration Review.** While the Criteria apply to a contractor's performance management system rather than a contract, it is necessary for a contract to be in the process of being executed before compliance can be demonstrated. This is necessary because compliance is demonstrated by observing the way in which the contractors manage a contract. Also, significant resources are required to conduct the demonstration and these are not normally committed in anticipation of a specific Defence requirement.

2.1.6. **Criteria Without Cost Reporting.** Contractor's internal management systems may be required to comply with the Criteria with no concomitant requirement for reporting of actual costs. In this event, Defence wishes to be assured that the contractor has at least sound internal management systems. The contractor's system must nevertheless comply with all of the requirements set out below except in so far as they relate to the provision of reports to Defence in respect of actual cost data. Irrespective of contract requirements, contractors are encouraged to generate internal management reports similar to the Cost Performance Report, or at least presenting the same data elements.

2.1.7. **System Requirements.** Contractors' management control systems are expected to provide a framework for defining work, assigning work responsibility, establishing budgets, controlling costs, and summarising, with respect to planned versus actual accomplishments, the detailed cost, schedule, and related technical achievement information for appropriate management levels. The systems must provide for:

a. realistic budgets for work scheduled within responsibility assignments

b. accurate accumulation of costs related to progress of the planned work;

c. comparison between the actual resources applied and the estimated resources planned for specific work assignments;

d. preparation of reliable estimates of costs to complete remaining work; and

e. support of an overall capability for managers to analyse information to identify problem areas in sufficient time to take remedial action.

2.1.8. There are thirty five Criteria grouped in five areas. These are in approximate chronological relationship to the areas of a management control system that would be exercised as a contract progresses from initial planning to maturity and various controls are utilised and amendments are incorporated. The Criteria areas are:

a. ORGANISATION

b. PLANNING AND BUDGETING

c. ACCOUNTING

d. ANALYSIS

e. REVISIONS AND ACCESS TO DATA

2.2. TERMS EXPLAINED

2.2.1. The following terms supplement or amplify those defined in DEF(AUST)5655.

a. **Cost.** The sum of all direct and indirect costs applicable to a contract, or specified element thereof.

b. **Budget at Completion (BAC).** The total budget allocated for the completion of work within the Performance Measurement Baseline.

c. **Fee.** The dollar difference between the actual or anticipated cost and the negotiated price of a contract or specified portion thereof.

d. **Fixed Price Contract.** A contract in which the price remains unchanged for the period of the contract except for agreed contract scope changes or variations in escalation and exchange rates if applicable. This type of contract relies on the premise that a contractor is able to estimate the cost of producing and supplying the required goods/services with reasonable accuracy.

e. **Earned Value.** See Budgeted Cost for Work Performed in DEF(AUST) 5655.

f. **General and Administrative Expense (G&A).** Costs associated with maintaining the company operation. Normally includes all company office expense (wages and fringe benefits of executives and supporting staffs such as accounting and personnel departments), costs associated with the facilities in which they work, and marketing costs. G&A is included within Overheads.

g. **Incentive Contract.** A contract which utilises the profit motive of the contractor as an inducement to meet or improve upon obligations, whether expressed in terms of contract costs or delivery schedules. This is achieved by relating the contractor's return to the achievement of specified performance targets and/or the assumption of greater degrees of risk, the contractor benefiting through greater profit if the target is bettered and suffering through less profit if it is not achieved. This type of contract is most appropriate where management risks associated with the contract preclude a fixed price contract but do not justify a cost-plus format. It is especially appropriate where a significant amount of developmental work is required.

h. **Margin.** See "fee".

i. **Performance.** Cost Schedule performance.

j. **Price.** The sum of cost and fee/profit for a contract, or specified portion thereof.

k. **Profit.** See "fee".

l. **Project Authority.** The authority responsible for monitoring contractor performance, including technical and financial aspects and overall coordination of all work under the contract. Certain other authorities (eg. Production Authority, Technical Authority and Design

Authority) act as advisers to the Project Authority and are not mentioned in the contract unless necessary.

2.3. CRITERIA REQUIREMENTS

2.3.1. The following six chapters are devoted to a discussion of the Criteria. The explanations and interpretations in this guide are intended to ensure a uniform and consistent implementation of performance measurement requirements. These chapters are intended to clarify Defence requirements and objectives for Defence and contractor organisations which must operate performance management control systems which satisfy the Criteria.

2.3.2. **Terminology.** The terminology used in this Guide is based on DEF(AUST) 5655 and the definitions above. Contractor cost schedule control systems may use differing terminology, but such terminology must be able to be directly translated with relative ease to the terminology of this Guide so as to facilitate reviews to determine Criteria compliance.

CHAPTER 3. ORGANISATION

3.1. INTRODUCTION

3.1.1. The first sub-section of the Criteria, Organisation, is concerned principally with the definition of work required to be performed by the contractor and the assignment of tasks to organisations responsible for performing that work. It requires that all work to be performed under the contract (authorised work) be defined within the framework of a Contract Work Breakdown Structure (CWBS). USA DoD MIL-STD-881 (latest revision), Work Breakdown Structures for Defense Materiel Items, establishes guidelines governing the preparation and employment of the CWBS and should be used for guidance pending publication of the equivalent Australian document, DEF(AUST) 5664.

3.2. CONTRACT WORK BREAKDOWN STRUCTURES

3.2.1. **Scope.** The contractor's extension of the CWBS should reflect all of the work required under the contract and the way it is to be managed and performed. It must include the levels of the CWBS at which reports are required to be submitted to Defence, contract deliverables, major sub-contracted items, intermediate levels, and cost account levels. Lower level elements should be meaningful products of task-oriented sub-divisions of a higher level element.

3.2.2. **Objective.** A CWBS facilitates planning by providing a formal structure for identifying the work. It simplifies the problems of summarising contract or project-oriented data and it establishes the reporting structure for management information required by Defence. CWBS planning should take into consideration CSCS data elements, summation requirements, scheduling systems, technical performance parameters, deliverable items and actual cost history. Below the required reporting level, the CWBS should recognise and accommodate the differences in the way work is organised and performed in the development and production phases.

3.2.3. **Flexibility.** The contractor must be provided flexibility and must not be driven to sub-dividing work down to very low levels. Contractors may recommend, propose and negotiate alteration of the preliminary CWBS. The contractor should have complete flexibility in extending the negotiated CWBS to reflect the approach to be used in the work. It is not necessary to extend all elements of the CWBS to the same levels. A basic objective is to sub-divide the total contractual effort into manageable units of work. Large or complex tasks may require numerous sub-divisions. Other tasks of lesser complexity or size may require substantially fewer levels. There is no need to use "dummy" levels to force all segments of the CWBS to a common level. However, dummy levels are acceptable if this facilitates the use of a particular data accumulation coding system.

3.2.4. **Effect of Phase.** When establishing the lower levels of a CWBS, it is essential to recognise and accommodate the differences between the organisation, performance and management control of work in the development and production phases. System design and development normally are organised and performed along the lines of the major sub-systems of the overall system. The design normally is developed in progressively greater detail until it is established at the component level. In the production or manufacturing phase, components first are fabricated or purchased and then joined together in progressively larger sub-assemblies and assemblies until a complete system is produced. In addition, the production sequence normally follows a physical parts breakdown rather than the sub-system 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 during the development phase. Extension of production CWBS requirements should be reviewed by the contractor to verify compatibility with the product manufacturing breakdown and should be limited to those levels absolutely essential.

3.2.5. **Subcontract.** The level of detail in a subcontractor's CWBS is independent of the level of detail of 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 in

value or complex enough to warrant flow-down to the subcontractor of the requirements to comply with the Criteria, then these subcontract work tasks should be broken down to the same extent as if the tasks constituted a prime contract. Care should be taken by the prime contractor to ensure that the subcontractor has an appropriate CWBS as a subcontract requirement.

3.3. INTERRELATIONSHIP OF CWBS AND ORGANISATION

3.3.1. **Work Assignment.** The CWBS reflects the work to be performed. The contractor's organisational structure reflects the way the contractor has organised the people who will accomplish that work. To assign work responsibility to appropriate organisational elements, the CWBS and organisational structure must be interrelated, that is, organisational responsibility must be established for identified units of work. This interrelationship may occur at any level, but the Criteria require that the integration exists at least at the level where performance of work is managed. Other natural points of integration may occur as a result of the manner in which the contractor's work authorisation, budgeting and scheduling functions interface with each other and the CWBS.

3.3.2. **CWBS-Product Orientation.** CWBS hardware "legs" (eg., breakdowns of prime mission equipment, support equipment, spare and repair parts, etc.) should not contain functional organisation sub-divisions at any level between the cost account level and the total contract level. This product-oriented breakdown must enable information to be summarised and analysed by end-products regardless of the functional organisations working on the end products. However, as long as the contractor's CWBS meets these requirements for summary information and analysis, the contractor may include intermediate summaries (eg., by function, by geographical area, or for some other purpose) as long as the contractor can, and does, summarise and analyse data by CWBS hardware element.

3.3.3. If there are hardware "leg" functional organisation breakdowns within the way that the contractor is summarising or managing, they should be completely explainable and capable of being shown as being compliant with the Criteria.

3.3.4. **Critical Subcontractors**. Critical subcontractors as determined by the prime contractor and the Project Authority must also be separately identified and integrated into the CWBS.

3.4. COST ACCOUNTS

3.4.1. **Cost Account Establishment.** The assignment of lower level CWBS elements to responsible lower level organisational managers provides a key point for management control purposes and cost collection. The lowest level at which organisational responsibility for individual CWBS elements exists, actual costs are accumulated, and performance measurement occurs, is referred to as the cost account level.

3.4.2. **Basis.** The cost account is the main action point for planning and control of contractual effort, since 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 the cost account level. For these reasons the levels selected for establishment of cost accounts should be carefully considered at the outset of a new contract to ensure that the work will be properly defined into manageable units and that organisational responsibilities are clearly and reasonably established. The quality and extent of information available during performance of the contract will largely depend upon the level and make-up of the cost accounts.

3.4.3. **Cost Account Level.** The cost account levels should be primarily determined by the scope of the management tasks. The proper levels should not be arbitrarily predetermined or the result of allocating one "across-the-board" level. As an aid in determining a proper level, the size (dollar value, length, etc.) of the resulting cost accounts should be used to help indicate proper sub-division of work. While cost accounts are usually located immediately above the work package level, they may be located at higher levels where consistent with the contractor's method of

management.

3.4.4. **Data Collection.** In addition to its function as a focal point for collecting costs, the cost account in a performance measurement system is also the lowest level in the structure at which comparisons of actual direct costs to budgeted costs are required. This should not be construed as implying that actual costs cannot be collected at a level below the cost account. Some contractors collect costs and make comparisons at a level below the cost account. The cost collection point must be at a level which will identify the cost elements and factors contributing to cost variances. Data elements Budgeted Cost for Work Scheduled (BCWS), Budgeted Cost for Work Performed (BCWP), Actual Cost of Work Performed (ACWP), and variances calculated at or below the cost account level should be summarised through both the CWBS and the organisational structure for reporting to higher levels of the contractor's management and, where required, to Defence.

3.4.5. **Responsibility Assignment.** Cost accounts are normally assigned to managers with direct line authority to the performing organisations. A cost account may, however, be assigned to a manager even without direct line authority to the performing organisation. In this case, the responsible manager must have clearly defined authority and direct managerial responsibility.

3.4.6. **Responsibility Assignment Matrix.** Integration of the CWBS and organisational structure at the cost account level may be visualised as a matrix with the responsible organisations listed on one axis and the applicable CWBS elements listed on the other axis. Each organisation is then clearly identified with the work for which it is responsible. FIGURE 3-1 illustrates integration of the CWBS and organisational structure for a development contract. Further sub-division of the effort into work packages may be accomplished by the appropriate organisation managers by assigning work to operating units.

3.4.7. **Number, Size, and Length.** No general rule may be stated concerning the number of cost accounts for a given contract value. Company size, company organisation and contract statement of work are but a few of the factors that should be considered. Attempts to standardise the number, value or length of cost accounts from contract to contract or contractor to contractor are not appropriate. Nor is it appropriate to insist on cost accounts which are unnecessarily small in dollar value. Some situations with unreasonably small cost accounts may be alleviated by allowing cost accounts which cross functional lines, Level Of Effort (LOE) and discrete effort to be intermingled (refer to paragraphs 3.5.1 and 3.7.4), or by raising the level of the CWBS or organisational element on which the cost account is based. The duration of a cost account should be considered in determining if a cost account is "small". The contractor should be permitted to consolidate work into cost accounts in a manner which reduces the paperwork for Cost Schedule control provided there is no substantial distortion in performance measurement or reduction in Cost Schedule visibility. On the other hand, the number of cost accounts should never be allowed to become so large that visibility into performance is lost or distorted.

3.4.8. **Crossing Functional Lines.** Problems may occur when an organisation is assigned a cost account budget that includes tasks to be performed with non-organisational resources. A cost account for which an organisation is responsible may contain non-organisation work, if this non-organisation work is minor and segregated. There should be procedures which provide for the responsible organisation to monitor, assess and report performance measurement (including ACWP) on non-organisational effort.

3.4.9. **Indirect Cost Control.** While all direct costs are accumulated in cost accounts, the Criteria do not require the recording of indirect costs (overhead) at this level. Contractors must, however, be able to identify the organisational managers responsible for controlling the indirect costs that are allocated to Defence contracts. Indirect budgets should be established and assigned to the organisational managers responsible for controlling such costs. Further, overhead pools and corresponding budgets must be designated and the methods used for budgeting, control and allocation clearly defined and documented.

3.5. TYPES OF EFFORT – DIFFERENTIATION

3.5.1. **Classification of Effort.** At the lower levels, all work should be categorised into one of three

different types of effort:

a. discrete tasks which have a specific end product or end result,

b. support-type work which does not result in a final product (eg., sustaining engineering, liaison, administration, coordination, follow-up and other such activities), and

c. factored effort which can be directly related to other identified discrete tasks (eg., portions of quality control or inspection).

3.5.2. In the Criteria, discrete tasks are referred to as "work packages," support-type effort as "level-of-effort (LOE)", and factored effort as "apportioned effort". All work under the contract must eventually be planned as, and placed in, one of these categories during the performance of the contract. Treatment of LOE and factored effort as "work packages" is not strictly appropriate. But it may be convenient to handle them in this way provided that they are not confused with measured effort.

3.6. WORK PACKAGES

3.6.1. **General.** Work packages are natural sub-divisions 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 organisation and serves as a vehicle for monitoring and reporting progress of work. Documents which authorise and assign work to a performing organisation are designated by various names throughout industry. "Work package" is the generic term used in the Criteria to identify discrete tasks which have definable end results.

3.6.2. **Work Package Documents.** Work package documentation need not contain complete, stand-alone descriptions. Supplemental documentation (such as the CWBS Dictionary, specifications, test plans, etc.) may augment the work package descriptions. However, the work package descriptions must permit cost account managers and work package supervisors to understand and clearly distinguish one work package effort from another. 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. Work packages should have the characteristics identified in Section 4 of DEF(AUST) 5655.

3.6.3. **Work Package Duration.** A key feature from the standpoint of evaluating accomplishment is the desirability of having short-term work packages. This requirement is not intended to force contractors into making arbitrary cut-off points simply to have short-term work packages. Work packages should be natural sub-divisions of effort planned according to the way the work will be done. However, when work packages are relatively short, little or no assessment of work-in-progress is required and the evaluation of contract status is possible mainly on the basis of work package completions. The longer the work packages, the more difficult and subjective the work-in-progress assessment becomes unless they are sub-divided by objective indicators such as discrete milestones with pre-assigned budget values or completion percentages.

a. 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 throughout the development phase, making it more difficult to define in discrete terms. For these reasons, the Criteria do not attempt to impose specific limitations on work package duration. It should be recognised, however, that reports of contract status are normally provided to the Project Authority on a monthly basis.

b. Although reporting is normally done only for summary level items, work accomplishment should be based on completed work packages plus an assessment of the amount of work completed in open work packages. Work packages which extend over several reporting periods may require special consideration to ascertain the amount and value of accrued work-in-process work as of the reporting cut-off date. Care must be taken here to avoid an undesirable level of subjective judgment being required. In general, work packages which start during one

reporting period and end during that period or the next, provide a more objective basis for determining status of contract work.

c. The above does not mean that the Criteria require work packages to be limited to two months duration, but it does mean that objective devices for evaluating completed work-in-process should exist for longer work packages. The use of objective indicators or milestones within such work packages is a desirable technique which should reduce subjective evaluation of work-in-process.

3.7. LEVEL OF EFFORT

3.7.1. **LOE Measurement.** 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 must be separately identified from work-packaged effort to avoid distorting that which is measurable.

3.7.2. **Proportion of LOE.** The amount of LOE activity will vary among performing organisations, but within each should be held to the lowest practical minimum. The Criteria do not establish guidelines as to how much LOE is acceptable, but require that only work which cannot be work packaged or apportioned be designated LOE.

3.7.3. **LOE Budgeting.** As a minimum, LOE budgets must be separately substantiated and planned as direct labour, material/sub-contract, and other costs. LOE activity should be budgeted on a time-phased basis for control and reporting purposes.

3.7.4. **Mixing LOE and Discrete Work.** LOE and discrete work are normally segregated by cost account, but in some cases may be intermingled within the same cost account. This intermingling must be minimised to preclude distortion of performance measurement. When LOE and discrete work are mixed within the same cost account, it is preferable that ACWP be collected separately for the LOE and discrete portions and that the separate ACWP be used for performance analysis. When ACWP is available only at the cost account level (and not separately available within the cost account for LOE and discrete work), then the amount of LOE intermingled with discrete work must be small (strictly controlled). 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. Judgment must be used when addressing the intermingling of LOE and discrete work within small cost accounts. Small cost accounts should not normally be split into two very small cost accounts solely to facilitate the total segregation of discrete effort from LOE.

3.8. APPORTIONED EFFORT

3.8.1. Apportioned effort is dependent on, or related in direct proportion 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. 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.

3.9. DETAILED PLANNING

3.9.1. **General.** While all contractual effort eventually is planned and controlled through work packages, LOE or apportioned effort, it may not be practicable or possible to do such detailed planning for an entire contract at the outset. Work is planned in finite increments at the outset of a contract. These planning increments (that is, cost accounts) form the basis for work authorisation, budgeting and master scheduling.

3.9.2. **Rolling Wave Concept.** As the contract work is defined, a "rolling wave" planning concept may be used. Tasks suitable for job assignment evolve naturally and at least the near-term work is segregated into work packages, with the remaining work residing in planning packages. Planning

packages have characteristics similar to work packages but combine, under one estimated budget and schedule, tasks which will be converted into several work packages with precise budgets and exact schedules when detailed planning is possible. Thus, the contractual effort is progressively divided into smaller segments as work on the contract proceeds and as responsibility is assigned to successively lower levels of management. However, such work package definition must be accomplished in sufficient time for budgets to be developed and detailed plans for work accomplishment to be completed.

3.9.3. **Extent of Detailed Planning.** Each management system and contract application should be considered on its own merit. The extent of the detailed planning is determined by the nature of the work and should be planned as far in the future as practical. Production effort is normally planned considerably longer than six months in the future. However some development projects are less readily defined and consequently detailed planning may be less than six months in advance. Once work packages have been defined and budgeted, controls should be established to minimise further changes to budgets, schedule or scope of work, particularly in the near term (approximately 30 days).

3.10. CRITERIA

3.10.1. **General.** The remainder of this chapter is devoted to discussion of the Organisation Criteria. The objective is to clarify the requirements of the Criteria as an aid to interpretation for both Review Teams and contractors. Criterion Organisation 4 deals with Indirect Costs and is discussed in CHAPTER 6. Further amplification is found in the Evaluation/Documentation Review Checklist in ANNEX D which contains check-list questions used by Review Teams to evaluate performance measurement systems.

ORGANISATION 1
DEFINE ALL THE AUTHORISED WORK AND RELATED RESOURCES TO MEET CONTRACT REQUIREMENTS USING THE FRAMEWORK OF THE CONTRACT WORK BREAKDOWN STRUCTURE (CWBS).

Of foremost importance in organising any "major" acquisition program is establishing *all* the work parameters that will be required to accomplish that program. As part of this effort it is also essential to define all the resources that will be required to accomplish that scope of work. The criterion requires that this be done and that a Contract Work Breakdown Structure (CWBS) be used as the vehicle for this work and resource definition. When completed, the CWBS will provide a framework for various and extensive management functions and control purposes. Hence the CWBS is, perhaps, the single most important document/exhibit prepared in support of the CSCSC. Any weakness in the CWBS can have far-reaching and debilitating effects upon performance measurement and contract accomplishment; management control is proportionately eroded.

ORGANISATION 2
IDENTIFY THE INTERNAL ORGANISATIONAL ELEMENTS AND THE MAJOR SUBCONTRACTORS RESPONSIBLE FOR ACCOMPLISHING THE AUTHORISED WORK.

Once the scope of work has been adequately defined via the CWBS, it is important to assign responsibility for getting the work accomplished as defined. This criterion serves to ensure that the contractor reviews his manpower availability and the availability of his managerial personnel to ascertain to what extent these personnel have the time and the capability to assume responsibility for additional contract work. The task of composing an organisational chart (or Organisation Breakdown Structure - OBS) to identify which managers in the corporate structure will have responsibility for work accomplishment will usually suffice as a review to ensure that full management and technical capability exists. Where management, manpower, or technical capacity is not sufficient, the contractor must choose between the options of subcontracting for this additional capability or trying to hire additional personnel as a means of increasing his own

capacity. Identification of organisational responsibility is essential. If done improperly or insufficiently at the onset of a contract, the result is almost always a lack of management control, lack of scheduled accomplishment and cost overruns.

ORGANISATION 3

PROVIDE FOR THE INTEGRATION OF THE CONTRACTOR'S PLANNING, SCHEDULING, BUDGETING, WORK AUTHORISATION AND COST ACCUMULATION SYSTEMS WITH EACH OTHER, THE CWBS AND THE ORGANISATIONAL STRUCTURE.

A contractor must be able to provide a complete audit trail for any increment of work through the various management sub-systems. He must be able to trace from the work task to the CWBS where that work is formally identified and defined. He must be able to trace the work task manager to the Organisational Breakdown structure (OBS) where the chain of command is assigned. He must be able to trace the work task to the formal scheduling system so one can identify when, in time, this effort fits into the total contract plan. The contractor must be able to provide and explain the detailed plans for getting the work task accomplished, along with providing a definition of the type of effort required. He should be able to break the effort down by element of resource (labour, material, etc.) and substantiate that efforts' budget construction. He should be able to show how the work plan is translated into action in the work authorisation system and how actual accumulation of costs are tallied as that work is accomplished. By this system data is collected and flows through the various levels of the CWBS and the OBS to the point of summarisation and reporting. The existence of a faulty data collection system weakens not only management control of the contractual effort but also provides the opportunity for the management of sub systems to be less than fully integrated.

ORGANISATION 5

PROVIDE FOR INTEGRATION OF THE CWBS WITH THE CONTRACTOR'S FUNCTIONAL ORGANISATIONAL STRUCTURE IN A MANNER THAT PERMITS COST AND SCHEDULE PERFORMANCE MEASUREMENT FOR CWBS AND ORGANISATIONAL ELEMENTS.

The first two Organisation criteria require the contractor to define/organise the contract scope of work and to identify/organise his managerial staff in a manner that can get contract work accomplished. This criterion requires their integration in a manner that enhances performance measurement. The cost account has been previously identified as the lowest-level focal point for management control of all contractual effort. It is the initiation point for performance management and measurement. Hence, this criterion requires that the CWBS should be integrated with the OBS at least to the extent that Cost Account Managers be assigned to their respective cost accounts for purposes of performance measurement.

CHAPTER 4. PLANNING AND BUDGETING

4.1. INTRODUCTION

4.1.1. The Organisation section of the Criteria established the basic framework for defining and organising the work to be performed. The Planning and Budgeting section deals with the requirements for program scheduling and budgeting. Generally, it requires that all work to be performed under the contract (authorised work) be scheduled and that budgets be assigned to identified manageable units of effort.

4.2. PLANNING

4.2.1. **General.** Assignment of budgets to scheduled segments of work produces a time-phased plan against which actual performance can be compared. The establishment, maintenance and use of this plan are extremely important aspects of performance measurement. Good planning demands thoroughness and discipline at the outset with continuing discipline required in the maintenance and operation of the plan. This does not mean that the system must be inflexible but that changes to the time-phased budget plan must be rigorously controlled and documented.

4.2.2. **Detailed Planning at Lower Levels.** While planning is required at all levels of management, it becomes progressively more detailed and finite at lower levels of the organisational structure and the CWBS.

4.2.3. **Initial Division.** All of the work for a given contract cannot usually 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. 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); eg, Preliminary Design Review or Critical Design Review.

4.2.4. **Summary Level Planning.** When it is clearly impractical to plan authorised work in cost accounts, budget should be identified to effort at higher CWBS levels for further sub-division at the earliest opportunity. The budget for this effort must be identified specifically to the work for which it is intended, be time-phased and have controls established to ensure that it is not used in performance of other work. Eventually, all the work to be performed will be planned by specific organisational elements to the appropriate level of detail. 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 performance measurement baseline is questionable.

4.2.5. **Authorised Unpriced Work (AUW).** For work authorised and performed by the contractor outside the scope of the contract (typically in advance of a formal contract amendment), 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. Upon issue of the formal contract amendment, the remaining effort will be planned and budgeted within cost accounts as soon as practicable to ensure disciplined baseline planning.

4.2.6. **Work Authorisation.** Before work actually begins, the work authorisation system should define and identify the work to be done and the organisational elements responsible. Schedules and budgets should be established for all work at appropriate levels within the framework of the CWBS. Task authorisations, work orders or other appropriate means may be used for this purpose.

4.3. SCHEDULING

4.3.1. **General.** The scheduling system should provide for all specified work to the lowest defined element of the CWBS in a way compatible with contract milestones and be meaningful in terms of

the technical requirements of the contract. It should provide schedules so that actual progress can be related. Such schedules should identify key milestones and activities which recognise significant constraints and relationships. 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 scheduled 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 by the contractor for control purposes.

4.3.2. **Flexibility.** 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 supportive of, the master schedule. Clear and adequate relationships between the techniques employed at various levels must be maintained, including vertical traceability.

4.3.3. **Requirements.** Basically, the Criteria require the scheduling system to be formal, complete, and consistent. The scheduling system should contain a summary or master schedule and related subordinate schedules (intermediate and/or cost account) which provide a logical sequence and show interdependencies from the summary to the detailed work package levels.

4.3.4. Work package documentation does not have to contain specific calendar dates; it must, however, always contain either the month, week or day, whichever is appropriate.

4.4. BUDGETING

4.4.1. **Planning Package Budgets.** The planning and scheduling procedures serve as the basis for developing budgets and work authorisations. As the work is progressively defined in greater detail, budgets for the planned work should be concurrently assigned. When planning packages are established within a cost account, the contractor's system should provide for sufficient control of cost account 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 budgets must be related to, and be part of, the planning package from which the budget originated.

4.4.2. **Units.** Budgets may be stated either in dollars, man-hours, or other measurable units. Budgets for cost accounts and higher levels are normally expressed in dollars. The Criteria do not require that any specific currency basis (ie Base date, current, etc.) be used.

4.4.3. **Rates Usage.** Average (level) labour, 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, half-yearly or annual rates are acceptable, and should result in a valid time-phased estimate of cost for the task(s) to be accomplished. It is desirable to use the most recent rates, but when this is not feasible, it is acceptable to use rates that provide a valid estimate of costs for the effort to be accomplished during a particular period. At all times, BCWP must be based on the same rates as used for BCWS. Internal replanning of remaining portions of the performance measurement baseline to account for significant changes in the anticipated labour, overhead and other rates is desirable, but not mandatory.

4.4.4. In general, budget systems should provide for the following:

a. Direct budgets allocated to organisations performing the planned work identified to elements in the CWBS.

b. Indirect budgets allocated to specific organisations having responsibility for controlling indirect costs.

c. Identification of any management reserves and undistributed budget.

Normally, the total of direct and indirect budgets and management reserves equals the negotiated contract cost plus the estimated cost of authorised unpriced work.

4.4.5. **Assignment of Budget.** Since primary budget assignments may be made to functional organisations rather than to pieces of hardware or tasks, the level at which the organisational and CWBS elements are integrated may be the first point at which budgets are specifically assigned to CWBS elements. This is not always the case. Certain elements of the CWBS may be priced products or services with budgets assigned at the summary level and then subdivided as the work is broken down into manageable units of effort. Regardless of the budgeting technique, all work eventually receives a budget.

4.5. MANAGEMENT RESERVE

4.5.1. **General.** 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 provided that adequate identification and controls are maintained. Management reserve budget and its use must always be accounted for at the total contract level, although in some cases it might be distributed to and controlled at lower management levels.

4.5.2. **Negative MR.** In any case, management reserve budget is maintained separately from undistributed budget. There is no such thing as *negative management reserve.* If the contract is budgeted in excess of contract budget base (the contract target cost plus the estimated cost for authorised unpriced work), the provisions applicable to formal reprogramming apply.

4.5.3. **Changes.** Management reserve is not to be used as a contingency which can be eliminated from contract prices during subsequent contract change negotiations or used to absorb the cost of contract changes. Neither should the contractor be required to use existing management reserve to provide funds for authorised unpriced work or other modifications to authorised contractual efforts except as indicated in paragraph 4.5.4 below.

4.5.4. **AUW.** The contractor may, if the documented management system permits, use management reserve to provide temporary budgets for authorised unpriced work; however, it must remain clear to both parties that the management reserve budget was derived from costs previously negotiated for the contractual effort authorised prior to the change in process. Negotiation of contract changes may result in establishing a new level of management reserve reflecting the revised effort. This new level may exceed prior reserves.

4.6. UNDISTRIBUTED BUDGETS

4.6.1. **Definition.** Budgets applicable to contract effort, which cannot be specifically identified to CWBS elements at or below the level specified for reporting to Defence, are referred to as undistributed budgets (UB).

4.6.2. **Use of UB.** The establishment of an undistributed budget may be necessary when contract changes are authorised. For example, reporting deadlines may preclude the planning of newly authorised work prior to report preparation. However, since budgets for all authorised 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 below, the budget should be distributed to appropriate CWBS elements and cost accounts by the end of the next reporting period.

4.6.3. **UB - AUW.** For authorised unpriced work, the contractor may maintain budgets in an undistributed budget account until negotiations have been concluded, allocating budget only to that work which will start in the interim. Upon approval of the formal amendment, the remaining budget should be allocated appropriately to form a revised contract target cost. Both before and after negotiations, budgets may be allocated as additions to the scope of existing cost accounts, or when appropriate, allocated to separate cost accounts.

4.7. CONTRACT BUDGET BASE

4.7.1. **CBB - Cost & Incentive Contracts.** The original budget established for those elements of the

CWBS identified as priced products and services 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. For CSCSC purposes, this is called the Contract Budget Base (CBB). The CBB or decreases only as a result of:

a. formal contract amendments;

b. authorised unpriced work; and

c. price and exchange variation, if applicable.

For contract changes, the CBB changes by the amount negotiated, for those changes less profit. For authorised unpriced work, the CBB changes by the amount of cost estimated by the contractor for that effort. After issue of a formal contract amendment, the CBB is adjusted to reflect that amendment. The CBB, therefore, is a dynamic amount, changing as the authorised work under the contract changes. It cannot be changed by the contractor except as a result of authorisation by the Project Authority.

4.7.2. **CBB in Fixed Price Contracts.** Normally, when a contract is negotiated on a Fixed Price basis, only the price is established and agreed to by Defence and the contractor. In those instances, the contractor should unilaterally establish the CBB for internal management control purposes (and for reporting to Defence where required) by subtracting the value of the fee/profit he wishes to achieve from performing the effort from the original negotiated contract price. As in cost plus and incentive contracting, once established and initially reported to the Project Authority, it should not be changed by the contractor except as a result of authorisation by the Project Authority. This is the preferred methodology with regard to the Criteria; however, should instances arise where "price" reporting is desired as part of the contracted provisions, the Project Authority in consultation with the Review Director will negotiate specific provisions with the contractor.

4.8. PRICE AND EXCHANGE VARIATION

4.8.1. Where the terms of the contract permit agreed variations to the contract cost or price arising from changes in exchange rates and/or economic conditions or other factors specified in the contract, any increase or decrease in the contract cost or price so arising shall be appropriately reflected in the CBB as if those increases or decreases resulted by formal amendment to the contract. Distribution of these increases or decreases to performance measurement baseline elements or to management reserve shall be formally documented and reported.

4.8.2. As the contract proceeds, the CBB may be adjusted to reflect these changes and also to reflect the contractor's latest estimated cost adjustments. Thus, the performance measurement baseline may reflect the price and exchange conditions contained in the contract, and performance may be measured against a more realistic plan.

4.8.3. It is recognised that there are several different methods available to contractors with regard to price and exchange rate variation effects on baseline planning maintenance, and reporting. As long as the chosen method is documented and accepted by the Review Team, and the contractor can reconcile reports to the PA back to base (effective) date dollars, any method is acceptable. It is suggested that minor revisions to the CBB as a result of these variations be effected to/from management reserve in order to lesson the paperwork burden on the contractor.

4.9. PERFORMANCE MEASUREMENT BASELINE (PMB)

4.9.1. **PMB - Development.** As the contract effort is defined within the CWBS and identified to responsible organisational elements, the basis for budget assignments to identified tasks is provided. Eventually, each work package will have a budget. Since all work packages cannot normally be planned at the beginning of a contract, initial planning may consist of larger segments of work assigned to designated organisational elements. These organisational work assignments frequently serve as cost accounts in addition to their role in the planning function. Budgets assigned to cost accounts are time-phased according to the schedule for performing that work, thus forming the major portion of the time-phased budget baseline; that is, the performance

measurement baseline which is used in the measurement of both task and organisational performance. Further budget assignments to work packages are made as detailed planning proceeds. When all work packages are planned within a cost account, the sum of the assigned budgets plus LOE and apportioned effort should equal the total cost account budget or Budget at Completion (BAC) for the cost account..

4.9.2. **Cost Account Budgets.** 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 organisational units. The cost account budget should include all direct costs for the total of work with separate identification of cost elements (labour, 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.

4.9.3. **Cost Account Length.** Since cost account budgets and schedules also establish the constraints required for baseline control, cost accounts should not be exorbitantly long, or additional controls may be needed. When cost accounts average about a year 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, but to ensure that budgeting procedures prohibit budget planned for far-term work from being used in the near term. Therefore, 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.

4.9.4. **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, however, 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 budget 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 performance measurement baseline should be clearly auditable by review of contractor records and should be shown in applicable reports to Defence. Maintenance of a performance measurement baseline is required to ensure that deviations from plan are visible and can be examined to determine their causes. Replanning of manufacturing work packages is discussed in CHAPTER 11.

4.9.5. **PMB - Relation to Contract Cost.** The initial establishment of the performance measurement baseline should be tied to the contract cost (paragraphs 4.7.1 and 4.7.2). As new work is authorised on the contract, the contract cost and the performance measurement baseline are increased accordingly.

4.9.6. **Total Allocated Budget Definition.** Normally, the total allocated budget (the performance measurement baseline plus management reserve) should not exceed the negotiated contract cost plus the estimated cost of authorised but unpriced work (the CBB). All amendments made to the Performance Measurement Baseline must be auditable.

4.9.7. **Internal Operating Budgets.** Nothing in the criteria prevents the contractor from establishing an internal operating budget which is less than or more than the Total Allocated Budget. However, there must be controls and procedures to ensure that the Performance Measurement Baseline is not distorted.

a. Operating budgets are sometimes used to establish internal targets for rework or added in-scope effort which is not significant enough to warrant formal reprogramming. Such budgets do not become a substitute for the cost account budgets in the performance measurement baseline, but

should be visible to all levels of management as appropriate. Cost account managers should be able to evaluate performance in terms of both operating budgets and cost account budgets so as to meet the requirements of internal management and for reporting to Defence.

b. Establishment and use of operating budgets should be done with caution. Working against one plan and reporting progress against another is undesirable and the operating budget should not differ significantly from the cost account budget in the performance measurement baseline. Operating budgets are intended to provide targets for specific elements of work where otherwise the targets would be unrealistic. They are not intended to serve as a completely separate work measurement plan for the contract as a whole.

4.9.8. **Baseline Greater than CBB - Reprogramming.** Any increase which results in a total allocated budget in excess of the CBB constitutes formal reprogramming and must be formally submitted by the contractor and formally recognised by the Project Authority. This includes documented reconciliation from the old baseline. It should be clearly understood that such changes are not acceptable on a frequent basis, such as quarterly or semi-annually. The total Allocated Budget should represent a mutually agreeable plan between the Project Authority and the contractor upon which meaningful contract cost and schedule performance can be measured.

4.9.9. **Consequences of a Revised Plan.** When a contractor formally notifies Defence of a total allocated budget in excess of the CBB and the revised plan is accepted for reporting performance to Defence, then it should also be recognised that this condition may be an indicator to Defence that progress payments and liquidation rates may require review for appropriate adjustment.

4.10. **CRITERIA**

4.10.1. **General.** The remainder of this CHAPTER is devoted to discussion of the Planning and Budgeting Criteria. The objective is to clarify the requirements of the Criteria as an aid to interpretation for both Review Teams and contractors. Criterion Planning & Budgeting 9 deals with Indirect Costs and is discussed in CHAPTER 6. Further amplification is found in the Evaluation/Documentation Review Checklist in ANNEX D which contains check-list questions used by Review Teams to evaluate performance measurement systems.

PLANNING AND BUDGETING 1

SCHEDULE THE AUTHORISED 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.

This criterion is the only one which deals specifically with the need to schedule work. Primarily, it requires that a formal (via written System Description and internal operating procedures) scheduling system be established and used consistently to ensure discipline in the sequencing of work throughout the life of the contract. Secondly, it requires that these procedures be followed as a means of documenting, in writing, the complete schedule plan of work. These schedules normally consist of summary or master schedules and related subordinate schedules which provide a logical sequence from the summary to the detailed work package levels. In so doing, the schedules should provide for the interdependent sequencing of all work authorised on the contract in a manner compatible with the contract milestones and the technical requirements of the contract. The end goal of such schedules is that they provide a vehicle for evaluating actual progress (in time) against established milestones of achievement. However, it does not require the contractor to use any specific type of scheduling technique. PERT/Critical Path, Line-of-Balance, Gantt, and Milestone charting are all effective scheduling techniques; and any one or combination of these (or others) may be employed.

PLANNING AND BUDGETING 2

IDENTIFY PHYSICAL PRODUCTS, MILESTONES, TECHNICAL PERFORMANCE GOALS, OR OTHER INDICATORS THAT WILL BE USED TO MEASURE OUTPUT

Criterion 1 requires sequential scheduling that will identify task interdependencies. This Criterion requires identification of interim goals by which to measure work accomplishment. Once the schedule is established, the contractor should devise a methodology for tracking actual accomplishment of the scheduled work, to avoid subjective guessing of work accomplishment. Identification of milestones to the schedule makes it possible to place an objective value of the amount of work required to meet that milestone goal and in addition, as work can be proven to have been accomplished, the contractor can proceed on to the next task in the scheduled sequence.

PLANNING AND BUDGETING 3

ESTABLISH AND MAINTAIN A TIME-PHASED BUDGET BASELINE AT THE COST ACCOUNT LEVEL AGAINST WHICH CONTRACT PERFORMANCE CAN BE MEASURED. WHERE APPLICABLE 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 RECOGNISED BY BOTH THE CONTRACTOR AND DEFENCE.

This Criteria establishes the requirement for cost account managers to establish a standard vehicle for the comparison with work accomplishment. That vehicle is the Performance Measurement Baseline. It represents the formal plan of each cost account manager to do all the work assigned to him in the amount of time allotted and within the amount of budget authorised to accomplish that work. Given this a baseline, cost account managers can then report performance with respect to it.

PLANNING AND BUDGETING 4

ESTABLISH BUDGETS FOR ALL AUTHORISED WORK WITH SEPARATE IDENTIFICATION OF COST ELEMENTS (LABOUR, MATERIAL, ETC.)

An integral part of the planning process and of the construction of a Performance Measurement Baseline is the establishment of budgets for all the work authorised on a contract. Earlier in the planning stages, after each of the CWBS elements was broken down into subordinate cost accounts, the Cost Account Managers were tasked with breaking down their assigned scopes of work into the individual and specific work tasks (work packages and planning packages). Part of that task was a determination on the part of the cost account manager (CAM) as to what amount of skill (in terms of labour) would be needed to do the tasks and how much of this labour would be required. The CAM also had to determine what materials would be needed to do these tasks and he had to plan for any other company services (such as computer use, etc.) that he would need.

This criterion requires the contractor to apply budgetary values to the labour, material, and other direct charge requirements for which he planned. It further requires that the same total of these budgetary values should be constrained to match that CAM's proportionate share of the budget value contractally allocated to the contract. It is within this total budget parameter that all the work has been defined. Hence all work tasks to be accompished must be budgeted within this parameter. Throughout the CWBS then, from the highest level down through the Cost Account, and even at the work package level, there will be a budget entity that has been set aside to do each entity of work. Further, each entity of work (at any level) can be further defined as to amount of labour, material, and other direct charges that will be required to accomplish it.

PLANNING AND BUDGETING 5

TO THE EXTENT THE AUTHORISED 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 BUDGET AND SCHEDULING PURPOSES

Work packages are basic building blocks of the cost account and are used by the contractor in planning, controlling, and measuring performance. "Work Package" is a generic term for the work tasks with definable end-results that collectively comprise, along with planning packages, each cost account's scope of work. The Australian Defence Standard DEF(AUST)5655 identifies the characteristics of a Work Package.

These include:

a. It has a budget or assigned value expressed in terms of dollars, man-hours, or other measurable units; and

b. It's 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.

The requirement for work packages to be of short duration is a key feature of the criteria from the standpoint of evaluating accomplishment. It is not intended to force contractors to make "arbitrary" cut off points simply to have short-term work packages. Work packages should be the natural subdivisions of the planned effort within a cost account; their subdivision of the scope of work should reflect the actual way in which work will be done. When work packages are of short duration, little or no subjectivity will go into the assessment of work progress; the evaluation of contract status is possible mainly on the basis of work package completions. The longer the work package, however, the more difficult and subjective the progress assessment becomes. For longer work packages, it is strongly urged that they be subdivided by objective indicators of progress, such as discrete, interim milestones with preassigned budget values and scheduled completion dates.

PLANNING AND BUDGETING 6

PROVIDE THAT THE SUM OF ALL WORK PACKAGE BUDGETS PLUS PLANNING PACKAGES WITHIN A COST ACCOUNT EQUALS THE COST ACCOUNT BUDGET

The intent of this criterion is to check the discipline in assigning budget to the cost accounts. At any point in time the contractor must be able to account for all the budget authorised on the contract. Also, with the exception of management reserve, all budget must be specifically associated with a scope of work. In order to ensure adherence to these two principles the contractor must start at the lowest level of work/budget assignment, the cost account. The Cost Account Managers (all of them) must be able to verify the amount of budget that is associated with each work package and planning package of their cost account. The Cost Account Manager must also be able to verify the intended usage of every bit of budget assigned to his account. The logical way to satisfy the above requirement is to assign all of the authorised budget to the work and planning packages that comprise the cost account. At no time should a Cost Account Manager have an amount of budget that is not assigned to a segment of work. Such an amount would constitute a management reserve and management reserves should never exist at the cost account level. The above practice being true and adhered to by the Cost Account Manager, the CAM should always be able to verify that the sum of the work package budgets plus the sum of the planning package budgets within the cost account equals the cost account budget authorised for that scope of work. If the above can be verified for all cost accounts within the CWBS/OBS, then the budgetary basis for the Performance Measurement Baseline can be considered valid as well.

PLANNING AND BUDGETING 7

IDENTIFY RELATIONSHIPS OF BUDGETS OR STANDARDS IN UNDERLYING WORK AUTHORISATION SYSTEMS TO BUDGETS FOR WORK PACKAGES

Criterion 4 required the contractor to identify what part of the budget was for labour, what part was for material, and what part was for other direct charges. This criterion goes one step further. It

requires that the contractor be able to substantiate how he arrived at the budgetary amounts assigned to each Cost Account Manager. In other words, if a CAM has a labour budget of $50,000, a material budget of $35,000, and an ODC budget of $15,000, we want to know how he arrived at those figures. For the scope of work the CAM has to do, how does he know how much labour will be needed and at what skill level these labourers must be? How does he know what materials will be needed and in what quantity? How does he know what other direct charges he will have? The answer from the contractor may be that he is basing his estimates on some type of standards: engineering standards, historical standards, industry-wide standards, geographic standards, independent technical testing standards, etc. But specifically, every Cost Account Manager should be able to explain what standards he used to come up with the budget distribution he is reflecting for each work package and planning package within his purview.

Lastly, this criterion requires that the work authorisations, which formally tie each scope of work to each amount of budget, also be based upon the same standards as were the cost accounts' work and planning package budget/work relationships. This having been done the contractor (and the system reviewer) can evaluate the contractor's actual progress as work is done. They can say, "On the one hand our engineered standard showed we would need "X" hours of "Y" skill level to do this job. On the other hand, in practice we found that instead we needed either X + Z hours of "Y" skill level, or "X" hours of skill level "W" to do the job. It is the underlying standards that force budgets to be constructed validly. And it is the budgets that are used in the Performance Measurement Baseline to measure the contractor's performance against.

PLANNING AND BUDGETING 8

IDENTIFY AND CONTROL LEVEL OF EFFORT ACTIVITY BY TIME-PHASED BUDGETS ESTABLISHED FOR THIS PURPOSE. ONLY THAT EFFORT WHICH CANNOT BE IDENTIFIED AS MEASURED EFFORT OR AS APPORTIONED EFFORT WILL BE CLASSED AS LOE

All directly costed effort on a contract falls within one of three categories of effort: discrete work packages, apportioned effort, or level of effort activities. The prerequisites of a discrete work package have been previously defined, but generally they are the increments of work which have a definable end product when completed, which are specifically budgeted by element of expense in accordance with underlying standards, and which are specifically scheduled, to the day, for opening, interim milestone measurement, and completion. Apportioned effort can be just as discretely defined as discrete work packages. But apportioned effort tasks are unique because they bear a close association of dependence upon another discrete work package. If this degree of association can be identified and quantified then the apportioned effort can be planned and measured for progress as a proportionate factor of its base work package's plan and progress. The last type of effort is called "Level of Effort" (LOE). It adheres to some of the same budgeting requirements as discrete effort. Like discrete effort, LOE also has to be scheduled, to the day, for opening and completion. However, LOE activities are characterised by having no innate, interim milestones which could otherwise be used for progress evaluation purposes. LOE activities have no definable end product which can be evaluated for adequacy upon completion. An example of an LOE activity might be a Cost Account Managers job. His task is to manage but at the completion of his task he has, himself, turned out no end product - he has just managed others who may have turned out an end product. At any point in time it is difficult to ascertain his progress in the total management effort. One could have counted his phone calls, letters written, meetings attended, and counselling sessions held, but all of these together would not be capable of indicating the amount of the total management effort that had been accomplished. This type of effort, then, is vary hard to measure with any precision. All we know about it is how much the CAM is budgeting for his own management effort each month and what day his management effort begins and ends.

Consequently, the rule of thumb for LOE activities is to not even try to measure their progress. Their progress measurement is based, simply, on the passage of time; they will always get credit for doing what they planned (BCWP = BCWS). A schedule variance will never be possible, then, in an LOE task. If a CAM has an assistant one month that he had not previously planned for, he will incur a cost variance by virtue of having to claim two salaries against his cost account that

month instead of just his own. Because of the assumption of work progress that is given to LOE tasks, it is essential to minimise the categorisation of work as LOE to only those tasks which cannot be identified as discrete or apportioned. And because of the immeasurability of LOE as to scheduled work progress, it is important to keep track of the performance measurement of LOE activities separate from the discrete and apportioned work packages.

PLANNING AND BUDGETING 10
IDENTIFY MANAGEMENT RESERVES AND UNDISTRIBUTED BUDGET.

The intent is to ensure that, through alignment identification (identification in terms of amount and location), MR and UB will be separately controlled. The importance of this segregation and control lies in the definitions and uses of MR and UB. MR is that portion of the total Contract Budget Base (CBB) that is withheld by the contractor (ie. not distributed) for management control purposes. Contractors normally withhold management reserves for two purposes. The first is to *provide incentive to* the lower-level managers to do the job as cheaply as possible. Rather than distribute all the budget along with all the work authorised on the contract, a certain amount is *withheld* as MR. Wishing to keep their jobs secure, the lower-level managers will try to get their jobs done for the amount of budget distributed to them. Hence MR can be used for incentive purposes.

The second use of MR is as a contingency fund, to provide budgeting goals for unanticipated program requirements that will impact the future effort. Looking back historically, most contractors can document for each contract the cost of problems and other program requirements that were unknown at the time of contract award. Using this as a valid experience, after each new contract is negotiated, an amount of that contract value is withheld from distribution. It is called a management reserve and represents an amount of budget that the contractor is pretty sure he will have to spend before the contract is complete but he doesn't know on what he will spend it. Hence MR may be a contingency fund. In reality, MR serves both purposes at the same time. Once withheld from the CBB, it provides an incentive to do the job for less and at the same time provides management with a contingency fund for future unknown requirements. Since MR is withheld from distribution and maintained at the higher management levels, it is not a part of the time-phased Performance Measurement Baseline. By formula, the value of MR can be determined as follows: CBB - Budget at Completion (BAC) of PMB = MR.

Undistributed Budget (UB) is budget that is applicable to specific contractual effort which has not yet been identified to CWBS elements at or below the lowest level of reporting to Defence. UB classically exists as a transient amount. It is part of the negotiated value of a contract or contract change (that is for the accomplishment of a specific scope of work) but which for some reason has not yet been distributed below reporting level. For the period of time that this scope of work remains undistributed, its associated budget will be classed as Undistributed Budget (UB). Once distributed below the reporting level of the CWBS/OBS it ceases to be UB and instead is incorporated in the budget of the responsible organisation for that scope of work. UB is always considered a part of the BAC of the PMB. Specific attention must be given by the contractor to adequately define and describe what constitutes MR and UB so that they cannot be confused by the managerial staff. Further, every attempt must be made to be able to totally identify all budgetary amounts classed as MR and UB; this identification must include the amount of budget involved, where it is located (which CWBS element or OBS element is responsible for it), and when used, full disclosure of its use must be made.

PLANNING AND BUDGETING 11
PROVIDE THAT THE CONTRACT TARGET COST PLUS THE ESTIMATED COST OF AUTHORISED BUT UNPRICED WORK IS RECONCILED WITH THE SUM OF ALL INTERNAL CONTRACT BUDGETS AND MANAGEMENT RESERVES.

Criterion 6 requires that the sum of all work package budgets plus planning packages within each cost account equals that cost account's budget. This criterion builds upon that requirement and goes from the cost account level to the total contract level. Once it can be ascertained that each cost account budget is accurately established as a finite total, it is then necessary to be able to sum all cost account budgets along with any intermediate level budgets and UB to the total that is known as the Budget at Completion of the Performance Measurement Baseline (BAC of the PMB). Having thus validated the sum of the internal budgets it must be ascertained that this value plus that of the MR equals the value known as the Contract Budget Base (CBB).

CHAPTER 5. ACCOUNTING

5.1. INTRODUCTION

5.1.1. **General.** The contractor's accounting system must provide for adequately recording all direct and indirect costs applicable to the contract. Such costs must be directly summarised from the level at which they are applied to the contract through both the CWBS and functional organisation structures according to procedures acceptable to Defence.

5.1.2. **Cost Accounts.** Ordinarily, cost accounts are established by the contractor 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 point for cost collection and evaluation.

5.1.3. **Direct Cost Accounting.** The Criteria require the contractor to record direct costs on an applied or other acceptable basis for performance measurement and unit costing purposes. Direct labour costs are normally applied to work-in-progress on an as-used (applied) basis. Direct material costs should also be recorded in the same manner; however, there may be cases where it is not logical to make this a uniform requirement. In these cases, if existing contractor systems provide the fundamental elements for cost and schedule performance measurement and for determining unit or lot cost as appropriate, they may be accepted even though they do not record material as a direct cost at the point of usage.

5.1.4. **Level Of Effort.** LOE costs are normally segregated from costs of discrete effort at the cost account level to permit an evaluation of the measurable effort before it is combined with the support effort. This segregation is intended to prevent distortion of measurable activity until at least one comparison of BCWP versus ACWP has been made.

5.1.5. **Apportioned Effort.** Cost of apportioned effort should be directly related to the discrete work packages or cost accounts to which the cost pertains. Factors and methods used to apply apportioned effort should be formally defined in established procedures with such costs accumulated on the same basis as budgets are allocated.

5.2. MATERIAL ACCOUNTING SYSTEM

5.2.1. **Characteristics.** Contractor material accounting systems should have the following characteristics:

a. Accurate cost accumulation assigning material cost to appropriate cost accounts in a manner consistent with the budget.

b. Recognised costing techniques acceptable to Defence.

c. Capability to establish material price variances and usage variances attributed to material usage where appropriate.

5.2.2. With regard to material accounting, the contractor should be able to account for all material sub-contracted items and purchased parts which, by their value and significance, warrant such attention. It is not necessary to require individual identification of such things as small hardware, miscellaneous wiring materials, and other items of a similar nature. Accurate recording of transfers between contracts is required in the material accounting system.

5.2.3. **Price Variance.** 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 price 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's management system should show these differences

in the estimates of final costs.

5.2.4. **Usage Variance.** Material usage variance is an important cost factor on repetitive large volume, production-type jobs, but may be of marginal significance on single copy research and development equipment. Final material usage variances are not available until the work is completed. However, acceptable cost accounting techniques for analysing and determining current and projected usage variances should be expected to provide continuing internal measurement when the value and nature of the material warrant. The Criteria contain a requirement that contractors' systems 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.

5.2.5. **Excessive Scrap.** There are two preferred methods for budgeting for unanticipated excessive scrap (although other methods may be acceptable):

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

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

5.2.6. **Actual Direct Costs.** 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 as they are issued and charged as actual direct cost against 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. However, unit cost projections for follow-on procurements would be expected to include material consumed plus material requirements for schedule assurance based on waste and spoilage trends determined from a relevant phase (development or production) of the contract performance.

5.2.7. **Work Progress.** Work progress is determined on the basis of completion of individual segments of work or the attainment of specific milestones. Each such segment of work or milestone is assigned a budget for the resources estimated as necessary to perform that work. Actual resources expended must be recorded on the same basis as resource budgets were assigned if meaningful comparisons are to be made:

a. 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 assembly line 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.

b. If a contractor's system is qualified on other than an applied cost basis, actual direct costs may be recorded upon receipt of material, or upon payment, as appropriate under the system.

5.2.8. 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.

5.2.9. **Material BCWS and BCWP.** Material BCWS and BCWP are intended to permit measurement of events which reflect progress in contract performance, not for measurement of administrative or financial events (eg. booking of actual costs or invoice payment). Therefore, BCWS should normally be scheduled in accordance with a contract event and BCWP should be earned when the

event occurs.

a. 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.

b. 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. However, 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.

5.3. CRITERIA

5.3.1. **General.** The remainder of this Chapter is devoted to discussion of the Accounting Criteria. The objective is to clarify the requirements of the Criteria as an aid to interpretation for both Review Teams and contractors. Criterion Accounting 4 deals with Indirect Costs and is discussed in Chapter 6. Further amplification is found in the Evaluation/Documentation Review Checklist in Annex D which contains check-list questions used by Review Teams to evaluate performance measurement systems.

ACCOUNTING 1
RECORD 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.

It was an original intention of the Criteria to maximise the ability to measure performance of Defence contractors. As part of this intention it was logical and prudent for contractor's accounting systems to be able to account for all resource expenditures on an "applied" basis (ie. on an "as-used" or "as-consumed" basis). This requirement caused little or no difficulty in the categories of labour (where time cards or other time-measurement devices are used) or other direct charges (where services are rendered on some type of dollar value per-unit basis). In the area of material accountability, considerable variation existed between contractors and their respective methods of accounting for material usage. To ease this differential in material accounting methodology the criteria are interpreted as follows to give some leeway to the interpretation of what constitutes an "applied" basis of material accounting:

Direct material costs shall be those amounts recognised in the time period associated with the consumption of materials without regard to the date of commitment or the date of payment. These amounts may be charged to work that is in-process when any of the following takes place:

a. Materials 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; or

d. Major components or assemblies are received on a line-flow basis that are specifically and uniquely identified to a single, serially-numbered end-item.

Some contractor's accounting systems simply may not be capable of accounting for materials as they are "used." Contractors may seek to validate the ability of their performance measurement systems to account for materials on an "other-than-applied" basis (ie. at a point other than at consumption). Of the other points at which material can be accounted for (at commitment, at receipt, at payment, at inventory acceptance, or at inventory release) the only point which Defence will not accept is the point of "commitment."

For those contractors who seek to account for materials on an "other-than-applied" basis, the main requirement is to account for materials in a manner consistent with the way in which materials are budgeted. If materials are going to be accounted for at the point of receipt, then 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 then to actually account for them at another point. To do so would cause distortions in the performance measurement data and reflect incorrect contractor progress status. The seventh accounting criterion will also reference some parameters/restrictions for material accountability.

ACCOUNTING 2
SUMMARISE DIRECT COSTS FROM COST ACCOUNTS INTO THE CWBS WITHOUT ALLOCATION OF A SINGLE COST ACCOUNT TO TWO OR MORE CWBS ELEMENTS.

Cost accounts are formed at the juncture where the lowest level of functional responsibility exists for individual CWBS elements. Allowable costs collected within the cost account by element of expense must "roll-up" from the cost account level through the CWBS to the top level without being simultaneously applied to two or more higher level elements. If the CWBS was carefully developed and reviewed for adequacy in accordance with MIL-STD-881 (latest revision), the CWBS structure itself, should prevent any one single element's data from being rolled-up to two or more higher level elements. The reasons for this prohibition should be obvious. First if a roll-up of data to multiple elements were allowed to occur the values of that data would be multiplied by the number of higher-level elements receiving that data. Secondly. if multiple roll-up occurs, one must question the validity of the CWBS to adequately reflect the way work is actually to be done. And thirdly, multiple roll-up of data questions who is really in charge of the lower-level element whose data is being rolled-up. Careful development of the CWBS breakdown and the use of "integration/assembly-type" CWBS elements will usually preclude the need for common-item cost accounts being subsequently allocated to the "using" cost account.

ACCOUNTING 3
SUMMARISE DIRECT COSTS FROM THE COST ACCOUNT INTO THE CONTRACTOR'S FUNCTIONAL ORGANISATIONAL ELEMENTS WITHOUT ALLOCATION OF A SINGLE COST ACCOUNT TO TWO OR MORE ORGANISATIONAL ELEMENTS.

The intent of this criteria is similar to Accounting 2: the data representing the ACWP collected at the cost account may not be rolled up (ie., summarised) to multiple higher-level organisational elements. If the CWBS and OBS are properly constructed, and if the responsibility assignment matrix adequately assigns OBS responsibility to all CWBS elements of work, it will be extremely difficult to violate the intent of these two criteria.

ACCOUNTING 5
IDENTIFY THE BASES FOR ALLOCATING THE COST OF APPORTIONED EFFORT.

Apportioned effort may be included (and budgeted) as part of the work package to which it relates, or it may be established as a separate work package with its own budget (which is based on a percentage of the related work package). Apportioned effort may also be included (and budgeted) as part of the cost account to which it relates or it may be established as a separate cost account with its own budget (which is based on a percentage of the related cost account or work packages). It is important that the contractor have apportioned effort and procedures for use of apportioned effort, well defined in his System Description.

The intent of this Criterion is that the contractor adequately identifies, justifies, and quantifies the relationship between the apportioned effort and the base effort to which it is related. If this relationship is not sufficient, that apportioned account may not be a valid collection point for the accumulation of actual costs. When establishing a time-phased budget and when measuring performance of apportioned effort, the percentage factors of the base effort by which the apportioned effort is multiplied is directly dependent upon the quantified relationship between the base and apportioned accounts. For this reason, the factors established for the application of apportioned effort must be documented and applied in a formal, consistent manner.

Apportioned effort should be restricted to only that which is genuinely related to discrete effort. The collection of the ACWP in an apportioned account, however, is not dependent upon the same factored relationship established for the "time-phased budget" data and "earned value" data; ACWP for the apportioned effort will be whatever is actually expended to accomplish the apportioned effort.

ACCOUNTING 6
IDENTIFY UNIT COSTS, EQUIVALENT UNIT COSTS, OR LOT COSTS, AS APPLICABLE.

Just as a contractor acquires materials, vended items, and subcontracted components by unit of cost, so also is he expected to produce his contracted items in a manner that facilitates derivation of unit cost. Future pricing efforts are intimately concerned with the cost per unit of previous contract acquisitions. Such data helps provide the important justification for what is termed a "fair and reasonable" acquisition cost of items being procured by Defence.

Where production situations exist such that items are being produced on an accelerated assembly-line basis, it may not be practical to determine individualised unit costs. In these instances, it is sufficient to accumulate "lot" costs (wherein a "lot" is an aggregate of a specified and consistent number of units).

There are yet other situations wherein units are being produced on a single production line for more than a single customer. In these situations units are taken off the line in more or less random order according to the delivery agreements of the different customer's contracts. It is difficult, therefore, to establish exactly what the cost was of the specific units that went into each customer's order. In such instances, it is sufficient to establish "equivalent unit costs." (ie. all things being equal, on a "mature" production run each unit's cost is approximately equivalent to every other unit's cost). Where learning curves are indicated, equivalent unit costing must incorporate the value of the learning curve into each equivalent unit.

ACCOUNTING 7
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 RECOGNISED, ACCEPTABLE COSTING TECHNIQUES, DETERMINATION OF PRICE VARIANCES BY COMPARING PLANNED VERSUS ACTUAL COMMITMENTS; 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; DETERMINATION OF COST VARIANCES ATTRIBUTABLE OF 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.

Recognising the differences that can exist between contractors' material accounting systems (especially the point at which materials are accounted for), this Criterion's intent is to establish those characteristics that, as a minimum, all material accounting systems should be capable of providing. Regardless of whether contractors account for materials at the point of consumption (on an "applied" basis), or at some other material control point (on an "other-than-applied" basis), these accounting parameters/restrictions must be met.

CHAPTER 6. INDIRECT COST MANAGEMENT

6.1. INTRODUCTION

The Criteria do not specifically state that all of a contractor's overhead costs must be subject to the Criteria. Criteria Planning & Budgeting 9 and Accounting 4 refer to indirect costs that will be allocated to the contract. In a complex structure it may be impractical to review the total overhead system and, depending on the type of contract and the contribution of overheads to the contract cost or price, total examination of overhead structure may not be justifiable. In the event that not all overheads are allocated to a contract, but are treated as deduction from fee, they may be excluded from examination during a Review. However, any acceptance or validation arising from such Reviews must necessarily be limited to contracts of similar type where the same constraints on overheads will be observed.

6.1.1. **Accounting.** The contractor should charge indirect costs to appropriate overhead pools by methods as described in the System Description and procedures and these methods must be acceptable to Defence.

6.1.2. **Control.** Controls of indirect costs are required and should include:

a. Establishment of realistic time-phased budgets or forecasts by organisation; for example, department or cost centre.

b. Placement of responsibility for indirect costs in a manner commensurate with a person's authority.

c. Variance analyses and appropriate action to eliminate or reduce costs where feasible.

d. Review of budgets at least annually and when major unforeseen variations in workload or other factors affecting indirect costs become known.

6.1.3. **Level of Accounting**. After indirect costs are accumulated and allocated to contracts, they are applied at the level selected by the contractor. There is no requirement in the Criteria to apply indirect costs at either the work package or the cost account levels, although some contractors may choose to do so. However, it must be possible to summarise indirect costs from the applied level to the contract level without the need for further divisions.

6.2. CRITERIA

6.2.1. **General.** The remainder of this CHAPTER is devoted to discussion of the Criteria that concentrate on Indirect Cost Management. The objective is to clarify the requirements of the Criteria as an aid to interpretation for both Review Teams and contractors. Further amplification is found in the Evaluation/Documentation Review Checklist in ANNEX D which contains check-list questions used by Review Teams to evaluate performance measurement systems.

ORGANISATION 4
IDENTIFY THE MANAGERIAL POSITIONS RESPONSIBLE FOR CONTROLLING OVERHEAD (INDIRECT COSTS).

Indirect costs must be managed and controlled in much the same way as direct costs. However, where direct cost managers have as their main goal effective cost control for the objectives of only a single contract, overhead cost managers must establish goals based upon the contractor's total business base (ie. all the contracts that comprise his business volume). The way in which contractors attempt to control and manage the indirect cost effort may vary tremendously from one contractor to another. One may prefer a segregated control system where different managers provide checks and balances over one another with regard to indirect costs; other contractors may have unified or centralised overhead control systems.

Because of the diversities in overhead control philosophies, and because of the large portion of total contract costs which are indirectly incurred, and because of the difficulty in measuring overhead performance, it is extremely important to examine the contractor's overhead management system and their control procedures. The first step in this examination is to identify which managerial positions the contractor has identified to control indirect costs. Secondly, it is important to ascertain the extent of responsibility afforded each of these managers.

Regardless of whether overhead control is centralised or segmented, a clear assignment of responsibility is paramount.

PLANNING AND BUDGETING 9

ESTABLISH OVERHEAD BUDGETS FOR THE TOTAL COSTS OF EACH SIGNIFICANT ORGANISATIONAL 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.

Indirect costs account for a major portion of the costs of any contract. As such, the budgetary control and management of this category of cost cannot be overlooked or minimised. Indirect costs exist in essentially three different modes.

a. First are over-head costs for services that benefit more than a single contract. Routine machine maintenance on the manufacturing lines, for example, is a service or type of effort that must be done to keep the machines operational. But while this maintenance activity may be accomplished in a time-frame when only one contract is being worked-on, all of the contracts using those machines benefited from that maintenance service. So this type of indirect cost must be shared by all of the benefiting contracts.

b. A second type of indirect cost is the burden that all contracts must share for such commonly used commodities as electricity and other utilities, employee fringe benefits, superannuation taxes, office supplies, and off-the-shelf nuts and bolts.

c. A third type of indirect cost is classed as "general and administrative" expenses (G&A). G&A is most commonly termed the expenses of the corporate offices (salaries of the chief, corporate executives and their staffs, their office facilities, and their general operating expenses) that all of the contracts must bear a portion of paying.

Regardless of the type of indirect cost involved, they must be budgeted for like any other cost requirement anticipated on a contract, they must be budgeted for. Without this budgeting requirement, no baseline can be constructed against which contractor performance/progress may be measured. As a matter of administrative ease, most contractors collect and budget for indirect costs by pools, or burden centres. Such pools are nothing more than the lumping together of similar indirect costs into homogenous groupings. Once indirect costs are collected in pools, the contractor must identify and substantiate the pro-rata share of each pool that each contract must bear. This Criteria does not dictate the structure of the contractors overhead pools or attempt to standardise what costs those pools must collect. It does however, attempt to force the contractor to clarify how his overhead budgeting procedures work and requires the contractor to ensure that his employees do, in fact, follow these prescribed overhead budgeting procedures.

ACCOUNTING 4

RECORD ALL INDIRECT COSTS WHICH WILL BE ALLOCATED TO THE CONTRACT.

The intent of this Criterion is to ensure that the contractor has a formal (written) system description that not only requires the recording of all allowable indirect costs, but also explains, procedurally, how these indirect costs are to be recorded. Since we are dealing with a category of cost that is

expended to benefit more than a single contract, it is not sufficient for the contractor to state simply that he will record all indirect costs. Defence wants to know how the overhead accumulation system works; it wants assurance that all of the contracts benefiting from an indirect cost expenditure will bear their fair share of that indirect cost.

ANALYSIS 2

IDENTIFY ON A MONTHLY BASIS, IN THE DETAIL NEEDED BY MANAGEMENT FOR EFFECTIVE CONTROL, BUDGETED INDIRECT COSTS, ACTUAL INDIRECT COSTS, AND VARIANCES ALONG WITH THE REASONS.

Just as a performance measurement is needed for all directly costed effort on a contract, so also is it important to measure the progress of all overhead efforts attributable to the contractor's business base. Unfortunately, since overhead effort is not attributable to a single contract, it is almost impossible to measure the progress of overhead tasks on a contract-by-contract basis. Any performance measurement of overhead tasks must be done on a total facility basis. But while this is important in the contractor's efforts to control overhead cost growth, it does not make for very good monthly identification of overhead progress. As a result, the Criteria only requires a minimum level of monthly overhead analysis: that of comparing overhead budgets to overhead actuals (with the stipulation that any resultant variance be explained as to its cause).

CHAPTER 7. ANALYSIS

7.1. INTRODUCTION

7.1.1. **Purpose.** The analysis section of the Criteria is of particular importance because it is intended to ensure that contract data may be used to generate information to measure contract performance.

7.1.2. The Criteria, per se, do not require the submission of data or reports from the contractor to the customer. The criteria only set forth characteristics which contractors' systems must possess, and specify the type of data which should be derived from them.

7.1.3. **Data Elements**. Five basic data elements are identified in the criteria: ACWP, BCWS, BCWP, Budget at Completion (BAC) and Estimate at Completion (EAC). ACWP was discussed previously under Accounting and Indirect Cost Management (CHAPTERS 5 and 6). BAC was discussed in CHAPTER 4: Planning and Budgeting. This section discusses BCWS, BCWP, BAC, EAC, and analysis of variances resulting from comparisons of these five basic elements.

7.2. BUDGETED COST FOR WORK SCHEDULED

7.2.1. For the total contract, BCWS is normally the negotiated contract cost, or the contractor's nominated equivalent in a Fixed Price contract (see 4.7.2), plus the estimated cost of authorised but unpriced work, less any management reserve. It is time-phased by the assignment of budgets to scheduled increments of work.

7.2.2. **Determination of BCWS.** For any given time period, BCWS is determined at the cost account level by totalling the budgets for all work packages scheduled to be completed, plus the budget for the portion of in-process work (open work packages) scheduled to be accomplished, plus the budgets for LOE and apportioned effort scheduled to be completed during that period.

7.2.3. **Anticipated Learning.** A contractor must utilise anticipated learning when developing the time-phased BCWS. Any recognised 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.

7.2.4. **Consideration of BCWP.** In developing BCWS, consideration should be given to the methods planned for taking credit for BCWP (refer to Budgeted Cost for Work Performed, below).

7.3. BUDGETED COST FOR WORK PERFORMED

7.3.1. BCWP consists of the budgeted costs for all work actually accomplished during a given time period. At the cost account level, BCWP is determined by totalling budgets for work packages actually completed, plus the budget applicable to the completed in-process work within open work packages, plus the budgets for LOE and apportioned effort associated with completed work.

7.3.2. **Determination of BCWP.** The major difficulty encountered in the determination of BCWP is the evaluation of in-process work (work packages which have been started but have not been completed at the time of cut-off for the report). As discussed in CHAPTER 3, the use of short-span work packages or establishment of discrete value milestones within work packages will significantly reduce the work-in-process evaluation problem and 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, others take credit for fifty percent of the work package budget when it starts and the remaining fifty 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 pre-established budget or progress values to measure work performance.

7.3.3. The criteria do not specify any particular method as the technique used will largely depend on work package content, size, and duration. However, 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 labour, overhead, and other rates as for BCWS.

7.4. DATA ANALYSIS

7.4.1. **BCWS & BCWP.** Comparisons of BCWS with BCWP relate work completed to 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. A formal time-phased scheduling system must, therefore, provide the means of determining the status of specific activities and milestones.

7.4.2. **BAC & EAC.** 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 estimate at completion and, therefore, the variance at completion, to change. Such changes must be reported monthly.

7.4.3. **BCWP & ACWP.** Comparisons of BCWP and ACWP will clearly show whether completed work has cost more or less than 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 labour or materials different than planned, personnel efficiency different than planned, or a combination of these or other reasons.

7.4.4. **Cost Account Level Comparisons.** Comparisons of BCWP with BCWS and with ACWP are required at the cost account level. Cost accounts consist of an aggregation of work packages which are the responsibility of a single organisation. 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 if the measurement base is subject to uncontrolled fluctuation and change. Since higher level management information consists of direct summaries of the results of such comparisons, there is less need for further calculations at high levels to determine program status.

7.4.5. **Subcontractor - Performance Reporting.** When a sub-contractor is required to comply with the Criteria and also to provide a Cost Performance Report (CPR), sub-contractor data should be capable of summarisation by the prime contractor for performance measurement purposes. If a sub-contractor is not required to comply with the Criteria, the prime contractor should establish procedures which tie the planned and actual accomplishment of the sub-contractor to valid indicators, such as the proposed payment schedule or completion of identified work segments. As a general guide, if a sub-contract (including fixed or variable price) has a value of $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 would normally be expected to measure in-process performance of that sub-contractor prior to receipt by the prime of the product(s) being produced by that sub-contractor.

7.5. DATA SUMMARISATION

7.5.1. **Variance Summary Levels.** BCWS, BCWP, ACWP and associated variances should be summarised directly into both the CWBS and organisational structure from the appropriate level (cost account or below) to provide both contract status and organisational performance at all levels of management. Because favourable variances in some areas are offset by unfavourable variances in other areas, higher level managers will normally see only the most significant variances at their own level. However, the accumulation of many small variances which may be adding up to a large overall cost problem not attributable to any single major difficulty will also be evident. Similarly, summation of positive and negative variances may cloud the true picture. The same is true of the information to be reported to the Project Authority.

7.5.2. If required by the contract, the CPR provides data to the Project Authority at a summary level as specified in the contract. Information as specified in the contract will also be reported at the total contract level for major functional categories which reflect the contractor's organisational structure, such as engineering, manufacturing, subcontractor, etc. While only problems having significant cost or schedule impact on the contract will appear on this report due to the wash-out effect of favourable and unfavourable variances, all significant variances should be explained in the problem analysis portion of the report. The reason for reporting only summary level information to the Project Authority 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.

7.5.3. It should be recognised that this method of performance measurement is only one of the management tools available to contractors and to the Project Authority. Many major problems are disclosed through methods other than monthly cost reports. For example, failure to meet closely monitored schedule, manpower, or technical achievement plans and requirements should promptly alert contractor management that a problem exists. However, the contractor's internal cost performance reports and the CPRs to the Project Authority should indicate the overall cost and schedule impacts of such problems on the contractor.

7.6. SIGNIFICANT VARIANCES

7.6.1. **Variance Thresholds.** It is important to establish reasonable variance thresholds that will cause problem analyses and narrative reports to be prepared. Careful selection of these thresholds is necessary to prevent unnecessary work associated with preparing an excessive number of written analyses. The analysis of every cost and schedule variance is usually unnecessary and unproductive. Therefore, the contractor should establish internal cost and schedule variance thresholds and analyse only those variances which are significant: that is, those which exceed the thresholds. These thresholds may vary with respect to the level of the CWBS element, the level of the organisational element, the amount of work remaining, etc. It is essential that these internal variance thresholds be so established that all significant variances will be analysed while at the same time avoiding an excessive number of variance analyses.

7.6.2. Generally, thresholds are established requiring a variance analysis for any cost or schedule variance that exceeds a certain percentage of BCWS or BCWP and exceeds an established dollar minimum (for example, __% of cumulative BCWS, and $_____). When initially establishing the thresholds, it may be advisable to provide for tightening these thresholds as the contract progresses, in view of the increased cumulative values of BCWS, BCWP and ACWP.

7.6.3. Another approach is to establish the thresholds as a percentage of the Budget at Completion (BAC) rather than as a percentage of BCWS or BCWP (for example, 100(BCWP-ACWP) divided by BAC for cost variance threshold; 100(BCWP-BCWS) divided by BAC for schedule variance threshold). This results in a threshold which becomes a progressively smaller percentage of cumulative BCWS and BCWP as the contract progresses. Since this type of variance threshold may be relatively loose early in the contract, the threshold for early variances may be limited by adding a threshold based on a percentage of cumulative BCWS (for example, _____% of BAC or _____% of cumulative BCWS, whichever is less).

7.6.4. **Variance Analysis.** Whenever a variance exceeds the prescribed threshold, analysis and explanation are required. Consideration may be given to establishing higher thresholds for underrun or ahead-of-schedule conditions to minimise the generation of analyses and explanations of variances that do not have potential for adverse impact.

7.6.5. The selection of thresholds should avoid the explanation of variances that are unimportant, while not missing variances that are significant. It should be recognised that no particular approach or set of thresholds is "best" for all circumstances. It may be appropriate to use different thresholds for different levels of management, for different organisational elements, and for reporting to the customer. Whenever, during the performance of a contract, it becomes apparent that the thresholds are no longer appropriate, they should be revised. Too few or too many variance analyses in

relation to the performance status of the contract may indicate improperly set thresholds which require adjustment.

7.7. TECHNICAL ACHIEVEMENT

7.7.1. **Technical versus Cost & Schedule Accomplishment.** The key to meaningful correlation of technical achievement with cost and schedule control is the proper definition, organisation 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. In correlating cost, schedule and technical achievement, it is apparent that unfavourable cost or schedule conditions are usually caused by technical difficulties. Therefore, quantitative information as to technical status is desirable and should be supplemented by narrative reports.

7.7.2. As work on a contract progresses, the contractor determines the adequacy and quality of the work performed by making inspections, tests, and 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 as the desired course of action to correct the deficiencies, it may be 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 subject to appropriate controls provide additional budget to the responsible organisation. Thus, there is a close relationship between technical achievement (that is, inspection and test) and its impact on cost and schedule.

7.8. ESTIMATE AT COMPLETION

7.8.1. **EAC.** The Criteria require the contractor periodically (normally at least annually) to develop 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 for all authorised contract effort.

7.8.2. 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 formulation or updating of an estimate of cost to completion, time-phased to the extent necessary to reflect projected rates. This is necessary to ensure that resource requirements are realistic and phased in accordance with projected performance. In addition, the estimate at completion should be examined monthly for accuracy as a routine cost management function and should be updated, as warranted. Such an examination is required to ensure reliable and timely EAC status reporting consistent with contractor reporting requirements.

7.8.3. The EAC process focuses on the Cost Account Manager, but it should also provide for regular input from functional and other managers which may impact contract performance.

7.8.4. Both the comprehensive EACs and the monthly updates are essential as a basis for management decision making by both the contractor and the Project Authority. While no specific time period for developing the comprehensive EAC is established by the Criteria, it is expected that a comprehensive estimate will be prepared on an annual basis as a minimum, usually in support of the business plan update, or more frequently when performance indicates that the current estimate is invalid. The EAC submitted to the Project Authority should be reconcilable with internal cost reports and any amendment to the payment schedule (funds) reported to the Project Authority. EACs should be established without regard for contract ceilings.

7.8.5. During CSCSC reviews the Review Team evaluation of a contractor's EAC process will concentrate on the adequacy of the EAC policy, procedures, and methods, and the consistency with which they are followed. EAC policy and procedures, and methods should be described in the System Description. The EAC procedures must be responsive to, and comply with, all the elements required by the ACSIG. Checklist Item IV.6 (see ANNEX D).

7.8.6. If the accuracy of the quantified results becomes a concern during the review process, the system description and procedures, and the way they are used, will be re-checked to ascertain that they are adequate. If they are adequate, then the accuracy concerns will be documented and forwarded promptly to the Project Authority for detailed examination, and will be included in the official CSCSC review report. The completion of the CSCSC review will not be impacted, unless non compliance with or inadequacy of the procedures is an issue.

7.8.7. **Subcontract EAC Reporting.** When a subcontractor's EAC is in excess of the subcontractor's fixed-price or ceiling in an incentive contract, the data portion of a prime contractor's CPR should show what the performance of the subcontract(s) will cost the prime. This means the CPR Formats 1& 2 (see ANNEX G) will include in the prime's EAC and the subcontract(s) EAC up to the contract price for firm price contract or ceiling price for an incentive contract. When available, the prime's best estimate of the subcontractor actual final cost (if it is over that contracted) will be included in the CPR Format 5 Narrative Analysis. If there is a CSCSC flowdown or CSSR requirement on a subcontract, and if the prime wants the subcontractor's actual EAC on a firm or incentive contract, the prime should negotiate this with the subcontractor.

7.9. CRITERIA

7.9.1. **General.** The remainder of this CHAPTER is devoted to discussion of the Analysis Criteria. The objective is to clarify the requirements of the Criteria as an aid to interpretation for both Review Teams and contractors. Criterion Analysis 2 deals with Indirect Costs and is discussed in CHAPTER 6. Further amplification is found in the Evaluation/Documentation Review Checklist in ANNEX D which contains check-list questions used by Review Teams to evaluate performance measurement systems.

ANALYSIS 1

IDENTIFY AT THE COST ACCOUNT LEVEL ON A MONTHLY BASIS USING DATA FROM, OR RECONCILABLE WITH, THE ACCOUNTING SYSTEM: BCWS AND BCWP; BCWP AND APPLIED (ACTUAL WHERE APPROPRIATE) DIRECT COSTS FOR THE SAME WORK; VARIANCES RESULTING FROM THE ABOVE COMPARISONS CLASSIFIED IN TERMS OF LABOUR, MATERIAL, OR OTHER APPROPRIATE ELEMENTS, TOGETHER WITH THE REASONS FOR SIGNIFICANT VARIANCES.

The intent of this Criterion has several facets. First is to establish the fact that analysis, to remain viable, must be accomplished on a regular, periodic basis. Since most contractor's accounting and budgeting systems are established on a monthly basis, analysis should be accomplished on this same periodic interval.

Secondly, it is the intent of this Criterion to establish the fact that analysis efforts must begin, as a minimum, at the cost account level. Since the cost account is the lowest level where full management and control responsibility exists for specific CWBS increments of work, the cost account is the logical point for not only the planning, scheduling, budgeting and accounting efforts but also for the analysis effort as well. A Cost Account Manager would not have full management and control responsibility if his span of authority did not include the requirement to analyse the work performance and associated costs against the Performance Measurement Baseline. Since the cost account represents the lowest level of the CWBS and OBS, by virtue of this requirement for analysis to begin at this level, summarisation of analytical data and trends can be validly accomplished.

Another intent of this Criterion is to make it perfectly clear that all data to be analysed must come directly from, or be reconcilable with, the accounting system. This represents yet one more effort on the part of the criteria to ensure that completely comparable data is analysed; this minimises the amount of distortion that would otherwise be rampant if data from a "second set of books" were used for comparison/analysis purposes.

Lastly, this Criterion establishes the minimum content of any cost analysis effort. It implies that the following data elements must be identified, on a monthly basis, at the cost account level: BCWS,

which represents the amount of work planned each month; BCWP which represents the amount of work actually accomplished each month as well as the budgeted value of that work progress; and ACWP, which represents the actual cost of the work accomplished each month. Given these three data elements, this Criterion requires that two comparisons be made with them: BCWP minus BCWS results in the cost account's Schedule Variance (SV) expressed in budgetary terms. BCWP minus ACWP results in the cost account's Cost Variance (CV) expressed in dollars relative to the budget. Since budgets and actuals are required by previous criteria to be established/accumulated by element of cost, the above data elements, comparisons, and variances can (and should) also be identified by those same elements of cost. Lastly, where variances (schedule or cost) exist, the Cost Account Manager is required by this Criterion to identify the reasons for those which are significant. (The significance of a variance is usually established by its relative size in comparison to a variance threshold or tolerance band.)

ANALYSIS 3

SUMMARISE THE DATA ELEMENTS AND ASSOCIATED VARIANCES LISTED IN CRITERIA ANALYSIS 1 AND 2, THROUGH THE CONTRACTOR ORGANISATION AND CWBS TO THE REPORTING LEVEL SPECIFIED IN THE CONTRACT.

The intent of this Criterion is to ensure that the data being used by the contractor's managerial staff is the same data that is reported to the Project Authority. Since the CWBS and OBS exist as a formal and disciplined framework for work and responsibility definition they become the ideal vehicles for summarisation of data from the cost account level to the reporting level. Using the CWBS and OBS for summarisation purposes ensures that data on all work elements and organisational elements is included in the reporting data base. An additional benefit of this requirement for CWBS and OBS summarisation is that it helps to identify the significant problem areas from among all levels of the contractor organisation and the contract scope of work. When significant variances exist in the monthly data report, it is possible to track down through the CWBS and OBS to identify the causal factors involved in that variance. This auditability allows analysis of corrective action procedures and impact evaluation, both of which are important in decision-making at the Program Office level.

ANALYSIS 4

IDENTIFY ON A MONTHLY BASIS SIGNIFICANT DIFFERENCES BETWEEN PLANNED AND ACTUAL SCHEDULE ACCOMPLISHMENTS TOGETHER WITH THE REASONS.

Because a comparison of BCWS to BCWP provides a dollar-valued schedule variance determination, it is often misassumed that this is the extent of schedule management and analysis required by the Criteria. To be sure, such a schedule variance is extremely important to any performance measurement system, but it cannot stand alone. What can it mean, for example, when a contractor has a negative schedule variance of $1.5 million? How far behind schedule has the contractor actually slipped? Is this schedule slippage retrievable? How much time does this $1.5 million represent? And more importantly, as a summary-level schedule variance, what is the schedule status of the work packages of the underlying CWBS and OBS elements? The intent of this Criterion is to ensure duplicity in schedule management and analysis. Schedules must be managed by the work they represent as well as by the cost by which they are depicted in a BCWS or BCWP data element. Reasons for schedule variances must address work tasks in order for corrective action to be relevant. The qualifying of schedule variance in dollar terms is simply a means of addressing the trend of a schedule variance. It does not address the time factor of the work discrepancy. Reference to the actual schedules is necessary to determine actual slippages. This Criterion ensures that this time factor is not overlooked.

ANALYSIS 5
IDENTIFY MANAGERIAL ACTIONS TAKEN AS A RESULT OF CRITERIA ANALYSIS 1 THROUGH 4.

The intent of this Criterion is to ensure that after the contractor's managers have analysed the performance measurement data (in accordance with the four foregoing Criteria) they then take the necessary management action. This management activity should be identified, documented, and followed-up for effectiveness, and reported to the Project Authority (where significant variances are involved).

ANALYSIS 6
BASED ON PERFORMANCE TO DATE, ON COMMITMENT VALUES FOR MATERIAL, AND ON ESTIMATES OF FUTURE CONDITIONS, DEVELOP REVISED ESTIMATES OF COST AT COMPLETION FOR CWBS ELEMENTS IDENTIFIED IN THE CONTRACT AND COMPARE THESE WITH THE CONTRACT BUDGET BASE AND, WHERE REQUIRED BY CONTRACT, THE LATEST STATEMENT OF FUNDS REQUIREMENTS REPORTED TO THE COMMONWEALTH

The Estimate at Completion (EAC), or as it is known to others, the Latest Revised Estimate (LRE), is the contractor's vehicle for telling the Commonwealth where each CWBS element, OBS element, and the total contract is going with respect to cost. At the beginning of a contract, the EAC is usually equal in value to the Budget at Completion (BAC) and these values are usually less than the Negotiated Contract Cost (NCC) and Contract Budget Base (CBB). At this point in time, optimism normally prevails. As a contract progresses, problems arise which have to be reacted to and neutralised. As these problems cause "significant" variances, the responsible manager must assess the impact of the problem. The most commonly used way of assessing impact is to develop a revised EAC. If, for example, a cost account had a BAC and EAC of $500,000 prior to the occurrence of a significant variance, and the EAC was revised to $600,000 as a result of the problem, the Cost Account Manager is telling you that the impact of that problem is $100,000 of additional expenses expected to be incurred to get back on track. With all managers using EACs to forecast impact of their problems, the EAC becomes a barometer to the Project Authority by which on program decisions can be taken before the problems blow out of control. The intent of this Criterion is to ensure that EACs be constructed properly and that they be compared to the amount of work authorised and the latest estimates of funds requirements reported to the Project Authority.

CHAPTER 8. REVISIONS AND ACCESS TO DATA

8.1. INTRODUCTION

8.1.1. **General.** The Revisions Criteria are concerned principally with maintaining the integrity of the performance measurement baseline and the timely and orderly incorporation of change. The final Criterion requires that data be made available to Defence for review and surveillance.

8.2. CONTRACT CHANGES

8.2.1. **Revision - Timeliness.** Changes to the contract can impact on virtually all aspects of the contractor's internal planning and control system, such as work authorisations, budgets, schedules, and estimated final costs. Revisions required to incorporate authorised changes to contractual effort should be made in a timely manner.

8.2.2. **Contract Change Guidelines.** Where a contract amendment has been negotiated, budget revisions are based on the cost components of the amended contract price which reflects the change. If work is authorised before the contract amendment is negotiated, appropriate change order planning may be accomplished with budgets based on the contractor's cost estimate for the change where:

a. The adjustment of budgets to reflect contract amendments is normally accomplished by revising undistributed budgets, management reserves, budgets established for work not yet started, or a combination of these. The use of undistributed budgets or management reserve generally has the least impact since it does not change budgets already issued and agreed to by the responsible organisation.

b. The formal negotiation of a contract in respect 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 final contract values of those completed tasks.

c. 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.

8.2.3. Adequate records of all budgeting changes should be maintained to provide, as a minimum, the basis for full audit and reconciliation with original budgets at the priced product and service level and for subsidiary budgets at the lowest level of the summary CWBS.

8.2.4. **Internal Replanning.** It may be necessary to perform replanning actions within the scope of the authorised contract (Contract Budget Base (CBB) or Total Allocated Budget (TAB)) to compensate for cost, schedule, and technical problems which have caused the original plan to become unrealistic; which require a reorganisation of work or people to increase efficiency of operations; or which require different engineering or manufacturing approaches. 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 (approximately 30 days) should be minimised.

8.2.5. Each contractor should maintain a performance measurement baseline that best represents the contractor's actual plan to achieve the remaining contract objectives. During the course of a contract, the 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 (ie., within the CBB and approved TAB) are a result of:

a. Preliminary Design Review (PDR) or a Critical Design Review (CDR);

b. A comprehensive Estimate at Completion (EAC);

c. Funding restrictions or modifications; or

d. Labour, overhead, or other rate changes that are significant enough to warrant replanning of future budgets. Internal replanning of remaining portions of the performance measurement baseline to account for significant changes in the anticipated rates is desirable, but not mandatory.

8.2.6. Due to the importance of maintaining a valid baseline for performance measurement, 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. The following should be considered:

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

b. All replanning changes must be authorised, documented, and controlled in accordance with the contractor's revision procedures. Whatever the contractor's replanning procedures and methods are, the contractor's management control system remains accountable for compliance with all replanning related criteria.

c. Changes in BCWS which impact the time-phased PMB or the reporting elements of the CWBS must be brought to the attention of the Project Authority in Format 5 of the CPR. This requirement is not intended to reduce contractors' resource management flexibility, but is intended to assist all users of the contractor's management system's data to understand and interpret it correctly.

8.2.7. **Work in Process Guidelines.** It is recognised that internal replanning (or implementation of contractual changes) may involve changes to work in process prior to its completion. If replanning of open work packages or LOE is necessary, the following methods are acceptable:

a. Close an incomplete work package by setting BCWS equal to the BCWP earned to date and subtract BCWP from the work package budget at completion (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 budget at completion (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:

1) replanning is restricted to the future portion of open work packages (except as authorised in 8.2.7.c below);

2) changes are minimised and are consistent with contractually required schedule milestones (except as authorised in 8.2.7.c below); and

3) changes are authorised and documented in accordance with the contractor's control procedures.

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

8.2.8. The process for replanning of open work is depicted in FIGURE 8-1.

8.3. APPROVAL

8.3.1. **Approval Requirements.** For most internal replanning, no prior notification or Project Authority approval is required to replan discrete or LOE work if the replanning is applicable to the next accounting period onward, does not cause the TAB to exceed the CBB, and does not cause or constitute a slippage of a contractually required milestone; or if the replanning is below the work package level. Prior Project Authority 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 performance measurement baseline schedule inconsistent with the contractually required schedule milestones.

8.3.2. Prior to authorising changes to a performance measurement baseline, the Project Authority should evaluate the impact of the change. Approval must specify the changes authorised and the timing for implementation.

8.3.3. Before authorisation of a change that results in a PMB becoming inconsistent with contractual milestones, there must be a clear, written understanding, that the replanning approval is for performance measurement purposes and does not constitute a change in contractual requirements; eg., "This approval authorises the contractor to manage to the attached schedule for the sole purpose of performance measurement. This does not authorise the contractor to revise the contractual schedule requirements." Where CPR reporting is used, all subsequent CPR submittals must clearly state in Format 5 that the reported performance measurement baseline schedule exceeds contractually required schedule milestones or deliveries and must identify the schedule difference(s).

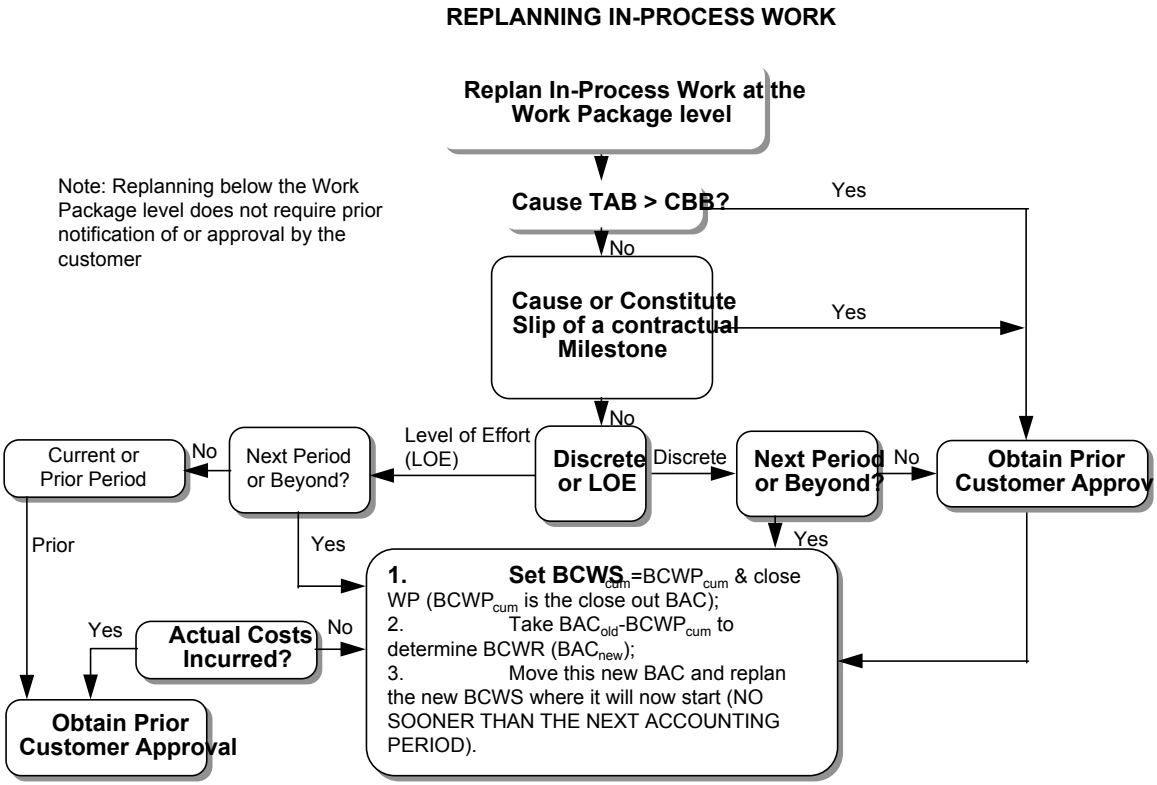


FIGURE 8-1

8.4. FORMAL REPROGRAMMING

8.4.1. **Requirements**. Situations may arise whereby available contract budgets for the remaining work are decidedly insufficient. Under these circumstances performance measurement against the available budgets becomes unrealistic, it may be necessary for the total allocated budget to exceed the contract budget base, and formal reprogramming may be necessary. Formal reprogramming by the contractor may entail: replanning future work; replanning in-process work; or adjusting variances (that is, 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, adequate to provide reasonable budget objectives, work control and performance measurement.

8.4.2. A thorough analysis of contract status by the contractor is necessary before the implementation of a revised total allocated budget in excess of the contract budget base. The contractor must perform a detailed estimate of all costs necessary to complete the contract. Factors to consider in developing the estimate are: the amount of authorised work remaining, the estimated cost of the resources required to accomplish the remaining work and 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 Project Authority of the need to increase the remaining budgets and measure subsequent performance against a total contract goal higher than the contract budget base and request the Project Authority's permission to do so. It is emphasised that such reprogramming does not necessarily imply any alteration to the contract price.

8.4.3. Before entertaining a request for a baseline in excess of the contract budget base, the Project Authority should consider the following:

a. 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 measurement for both the Project Authority and the contractor.

b. The contract should have a least six months of substantial work remaining after reprogramming.

c. Reprogramming should not be implemented more frequently than annually and should be limited to those situations required to future cost and schedule performance measurement. Ideally, this extraordinary procedure would be necessary only once or twice during the life of a contract.

8.4.4. When the Project Authority is satisfied that the new baseline represents a reasonable plan for completing the contract, the new baseline should be formally recognised as a basis for future contract performance measurement. Timeliness is essential in making this determination. Therefore, the Project Authority shall take immediate action to evaluate the:

a. impact on contract status reporting, such as the effect on cost and schedule variances and the change in the relationship of BCWP to the contract value;

b. method to be employed by the contractor in implementing the change; for example, adjustment to variances applicable to completed work, and/or adjustments to work in process.;

c. estimated amount of time required to accomplish the reprogramming and the guidelines for performance measurement during that time; and

d. 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.

8.4.5. 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, the BCWS and BCWP values before adjustment will be retained to ensure traceability. Establishment of management reserve for the reprogrammed effort is acceptable in most circumstances.

8.5. BASELINE MAINTENANCE

8.5.1. **Revisions - Requirements.** To maintain the validity of the performance measurement baseline, contractor discipline is mandatory throughout the organisation, particularly in regard to budgetary control. Contractors' written internal procedures should clearly delineate acceptable and unacceptable budget practices. These should include the following:

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

b. Work responsibility should not be transferred from one performing organisation to another, or from one cost account to another, without transferring the associated budget.

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

d. When management reserves are used, records should clearly indicate when and where they were applied.

e. When undistributed budgets exist, records should clearly identify their amount, purpose, and level at which they are held.

f. Budgets which are assigned to work packages should not be changed (except noted earlier in this CHAPTER) unless the scope of work is affected by contract amendment, price and exchange rate variations, if applicable, or other reasons agreed to by the contracting parties.

g. 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 value of contract amendments in respect of completed tasks).

h. Retroactive adjustments to BCWP based on substantiated work status to more correctly reflect actual accomplishment may be appropriate. However, 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 minimise future requirements for such adjustments.

8.6. ACCESS TO DATA

8.6.1. **Access to Data.** For the purposes of conducting a demonstration review or readiness assessment, it may be necessary for the contractor to disclose details of budgetary and actual cost data that may not otherwise be required by Defence. These data are required to demonstrate that the management control systems are actually implemented, are used by the contractor for performance monitoring, and that the data form the basis for reporting to the Project Authority.

8.6.2. Access may be required to data not directly related to the contract in order to facilitate demonstration of the management of overheads. In certain circumstances, access to particularly sensitive data of this nature may be restricted to a limited number of review team personnel, so long as the extent of the limitation does not preclude completion of the review process.

8.6.3. **Data Confidentiality.** Review Team members are required to not divulge sensitive information or use it for purposes other than for which it is made available. Review Team personnel should be formally reminded of the restriction on the use of data. Sensitive data will not be included in reports of reviews nor divulged in any other fashion without the prior agreement of the contractor.

8.6.4. **Data Access for Surveillance.** Access by Defence to actual cost and other information considered sensitive by the contractor during surveillance reviews should be treated in the same manner as was access during the demonstration review.

8.7. CRITERIA

8.7.1. **General.** The remainder of this CHAPTER is devoted to discussion of the Criteria. The objective is to clarify the requirements of the Criteria as an aid to interpretation for both Review Teams and contractors. Further amplification is found in the Evaluation/Documentation Review Checklist in ANNEX D which contains check-list questions used by Review Teams to evaluate performance

measurement systems.

This Criterion mandates two major requirements. First, the contractor must incorporate scope of

REVISIONS AND ACCESS TO DATA 1

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 ORGANISATIONS.

work, budget, and schedule changes within a short period of time. This incorporation is intended to extend down to the cost account level of planning. Adherence to this standard helps ensure that budget and work remain associated even when initiated by a contract change. In addition, it minimises the length of time in which budget may remain classified as Undistributed Budget. It also ensures that the addition of budget and work by a contract change be time-phased as soon as practicable. It is imperative when a contract change is received, that the contractor adhere to all the same requirements of planning, budgeting, and scheduling as was done when the original contract was planned, budgeted, and scheduled. This Criterion seeks to establish this same requirement of thoroughness for contract changes as the Organisation and Planning and Budgeting criteria did for the original contracted effort.

The second requirement implicit in this Criterion is that when an unpriced change order (here defined by the Criterion as directed effort before negotiation) is issued to the contractor by the Project Authority, the contractor should develop a "best estimate" of the cost of that change. This estimated budgetary amount should then be used in lieu of the budget that is normally associated with a negotiated change for planning and budgeting purposes. The intent here is to ensure that, even in the case of unpriced change orders, a budgetary amount be assigned to each increment of work planned. No work should be held up because of the unnegotiated status of an "unpriced" change order, nor should such authorised but unnegotiated work be distributed for accomplishment without a budgetary target for performance measurement purposes.

REVISIONS AND ACCESS TO DATA 2

RECONCILE ORIGINAL BUDGETS FOR THOSE ELEMENTS OF THE CWBS IDENTIFIED AS PRICE LINE ITEMS IN THE CONTRACT, AND FOR THOSE ELEMENTS AT THE LOWEST LEVEL OF THE DEFENCE PROJECT SUMMARY CWBS, WITH CURRENT PERFORMANCE MEASUREMENT BUDGETS IN TERMS OF CHANGES TO THE AUTHORISED WORK AND INTERNAL REPLANNING IN THE DETAIL NEEDED BY MANAGEMENT FOR EFFECTIVE CONTROL.

The contractor's system must allow for complete traceability of all budget changes for those items that are reported to the Project Authority. This is normally accomplished by the contractor's establishment of budget control logs that record the receipt and distribution of all budget transactions with reference to the source and application of funds. Each budget and work authorisation should reference a transaction number recorded in these budget control logs. Normally, subsidiary records are also maintained for each contract change to help ensure timely and complete distribution of the budget associated with each contract change. Separate records should also be kept for control of Management Reserves and Undistributed Budget.

REVISIONS AND ACCESS TO DATA 3

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.

The need for this Criterion is fairly obvious. The contractor may not permit records of any type of performance measurement data to be changed retroactively. Performance data is essential in reflecting contractor progress in:

a. achieving the budgetary target;

b. staying within schedule parameters; and

c. completing the scope of work to the technical specifications required in the contract.

Monthly data reflects such progress; cumulative plotting of such data can be translated into performance trends. Together this monthly and cumulative data combine to provide a history of contract achievement. Any retroactive change to this data will have drastic effects on the progress reports and possibly on the program. A retroactive change to monthly data will not only recall work that was previously thought to have been accomplished but will also impact the cumulative trend that was previously reflected. If ACWP and/or BCWP data is retroactively changed, the progress payments that were previously paid to the contractor could also have been in error. Historically, the data would become unrepresentative of the actual progress.

REVISIONS AND ACCESS TO DATA 4

PREVENT REVISIONS TO THE CONTRACT BUDGET BASE EXCEPT FOR COMMONWEALTH-DIRECTED CHANGES TO THE CONTRACTUAL EFFORT.

The Contract Budget Base (CBB) represents two things on a contract:

a. the total amount of work authorised on the contract; and,

b. the total amount of budget targeted to accomplish this work.

When this Criterion requires a prohibition against changes to the CBB, it is addressing both of these facets. The contractor may not arbitrarily change the amount of work authorised on the contract and the contractor may not arbitrarily alter the amount of budget targeted to accomplish this amount of work.

REVISIONS AND ACCESS TO DATA 5

DOCUMENT, INTERNALLY, CHANGES TO THE PERFORMANCE MEASUREMENT BASELINE AND NOTIFY DEFENCE EXPEDITIOUSLY THROUGH PRESCRIBED PROCEDURES.

Since the PMB is the yardstick by which contractor progress is measured, any change to the PMB must be formally documented by the contractor organisations involved. Further, it is paramount that any alterations of the PMB be reported to the Project Authority; this ensures that both the Project Authority and the contractor are measuring progress by the same "yardstick". Some specific guidelines by which the contractor may internally replan and thereby effect the PMB are listed.

The contractor may:

a. use Management Reserve to change cost account budgets of unopened work packages;

b. replan unopened work packages within the confines of cost account budgets; or

c. transfer work and associated budgets between costs accounts.

The contractor may not:

a. make retroactive changes to budgets, work performance, or costs of completed work;

b. transfer work or budgets independently of one another; or

c. replan closed packages.

REVISIONS AND ACCESS TO DATA 6
PROVIDE THE COMMONWEALTH'S REPRESENTATIVES WITH ACCESS TO THE INFORMATION AND SUPPORTING DOCUMENTS NECESSARY TO DEMONSTRATE COMPLIANCE WITH THE CRITERIA.

Defence contractually requires access to all pertinent management/control system records in the implementation/demonstration reviews and surveillance of a contractor's performance measurement system. If the contractor does not comply with a Review Team's or surveillance representative's reasonable request for access to pertinent data, the contractor is in violation of his contract. Access to data is necessary in order to assess a contractor's compliance to the Criteria. However, it must be noted that this Criterion is to ensure data access, not necessarily physical transfer of internal records. Especially where data is claimed by the contractor to be of a "proprietary" nature, the contractor is not required to provide copies of such data to all Defence representatives. He must merely provide access to such data for review/audit purposes. Restrictions on access may be addressed in a MOU between the Contractor and Defence.

CHAPTER 9. IMPLEMENTATION PROCESSES

9.1. GENERAL

9.1.1. This CHAPTER describes the process of implementing a compliant management control system from the time that the requirement is indicated in a Request for Tender (RFT) until the contractor's systems have been accepted by Defence. The type of review may vary depending on the type of work to be undertaken and the scope may depend on whether the contractor's systems have been previously accepted.

9.1.2. **Scope**. When a contractor is required to demonstrate compliance with the criteria for the first time, the Demonstration Review process is followed. In other cases, the Subsequent Application Review (SAR) process may be followed. The objective of the Demonstration Review is for the contractor to demonstrate that its systems meet the Criteria and are being applied to the contract. The objective of a SAR is to ensure that, on a new contract, the contractor is properly and effectively using an already accepted system. It is not the purpose of the SAR to reassess the contractor's previously accepted system. Hence, the scope of a SAR is significantly less although the same procedural steps may be followed.

9.1.3. **SAR.** A SAR will be normally be performed in lieu of a Demonstration review when:

a. a contractor or subcontractor is using a management control system which has been previously accepted; and

b. surveillance by Defence confirms that the accepted system is being, or has recently been operated as required in the relevant contract.

An SAR is not normally appropriate when an accepted system is being transferred from one facility to another. In this case, a Demonstration Review will normally be conducted to ensure that the entire system has been transferred, and properly implemented.

9.1.4. **Types of Review.** The management control systems used during development and production may be significantly different. Hence it may be appropriate to conduct separate reviews for development and production phases or contracts. Location, and hence, system operators and users, different interfacing systems such as Manufacturing Resource Planning systems, and procedural differences are some of the elements which affect the need for separate reviews. However, depending upon circumstances, the contractor may request separate or simultaneous reviews of the systems proposed for both development and production contracts (or a contractor may have one system which embraces development and production phases).

9.1.5. **Selection of Review Type.** In determining the type of CSCSC review (development or production) to be accomplished, the following issues should be evaluated by the Review Director in consultation with the Project Authority and the contractor:

a. The primary basis of the contract (development or production) should be considered, but it should not override other considerations.

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

c. If the majority of discrete effort in the contract is identified as either engineering or manufacturing, then the identification of the CSCSC review as development or production should be self-evident.

d. If there is little or no manufacturing effort (eg, contracts for long-lead items, engineering services, or production planning), the contractor can apply either an accepted development or an accepted production system.

9.1.6. **Contractual Basis.** Where it has been determined that the contractor for a specific project must have management control systems meeting the Criteria, it will usually be indicated in the RFT. The subsequent contract(s) will require that the processes in this guide be followed and the requirements are summarised in ANNEX B of this document. In exceptional circumstances, the Criteria could be applied to an existing contract.

9.1.7. **Criteria Check-List.** The check-list and guidance in this document are used by Defence for evaluation of contractors' proposals for the implementation of a compliant management control system. They may also serve to provide useful guidance to contractors in preparing descriptions of the management control systems. Contractors are encouraged to follow the criteria check-list when preparing System Descriptions to aid assessment by Defence.

9.1.8. **Phases of Review.** The phases of a typical review cycle include evaluations prior to contract award (paragraph 9.2 et seq), an Implementation Visit (IV) after contract award (paragraph 9.4.1), Baseline Review at about 60 to 120 days after contract award (paragraph 9.4.2), Readiness Assessment (RA) (paragraph 9.4.3) and the formal Review leading to acceptance (paragraphs 9.4.6 et seq.). A redemonstration may be scheduled where necessary to examine any changes made by the contractor to rectify deficiencies. After acceptance, the review process continues through on-going surveillance (paragraphs 9.5.1 et seq. and CHAPTER 12).

9.1.9. **Proprietary and Commercially-Sensitive Information.** Extreme care must be exercised during the review process to avoid improper or inadvertent disclosure of proprietary or commercially-sensitive information (see CHAPTER 7).

9.2. PRE-CONTRACT ACTIVITIES

9.2.1. **Request for Tender.** When it is determined that a contract will require management control systems that meet the Criteria, appropriate clauses will be included in the RFT. Sample clauses appear in ANNEX A.

9.2.2. **Tender Submissions.** Where required by the RFT, each tenderer's proposal includes a description of the management control systems to be used. Normally, the contractor would be expected to propose use of existing systems provided that they meet the Criteria. Defence does not require existing systems to be changed except where this is necessary to achieve compliance with the Criteria.

9.2.3. **System Descriptions.** The description of the contractor's management control system must be presented in sufficient detail to show how compliance with the Criteria will be achieved and to facilitate review and surveillance. While the contractor's System Description is not required to follow the evaluation/demonstration review checklist (ANNEX D), it must address all items in the check-list. Specifically, it shall:

a. describe the management systems and their application in all major functional cost areas such as engineering, manufacturing and tooling, as related to the development of the work breakdown structure, planning, budgeting, scheduling, work authorisation, cost accumulation, measurement and reporting of cost and schedule performance, variance analysis and baseline control;

b. describe compliance with each of the Criteria and correlate checklist items with applicable portions of the System Description, preferably by cross-referencing appropriate elements in the description of systems with the items in the checklist (ANNEX D); and

c. describe the proposed procedure for administration of the Criteria as applied to sub-contractors.

9.2.4. **Form of System Description.** A contractor may elect to keep the CSCS 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 portions of the referenced documents may be Criteria related from a control and revision stand-point. In these cases, the contractor and Defence may develop control procedures that will permit changes to the non-

Criteria-related portions of those documents without prior formal approval. This will require the contractor to identify, in the System Description, those specific sections or portions of the internal documents that are related to the contractor's CSCS and require prior Defence approval of any change or deletion.

9.2.5. **Management Systems Software.** Formal identification of third party commercial management systems software is not required in contractor's system descriptions, either for initial tender responses, validation, or for later reviews. The specific mention of software is not necessary, but it is necessary to clearly identify and describe sub systems being used to meet the Criteria. The accepted System Description and procedures must adequately describe what sub-systems exist at the time of acceptance. For example, this includes inputs, outputs, files, cost account and work package formats, earned value techniques and interfaces among sub-systems. However, mentioning 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), is permissible.

9.2.6. **Previously Accepted Systems.** A contractor proposing to use performance management control systems previously accepted may satisfy the criteria requirement in the RFT by citing in the proposal the Memorandum of Understanding (MOU) (paragraph 51 and Annex G) or notification of acceptance.

9.2.7. **Evaluation Review.** Normally, for a new contract, a CSCSC evaluation is undertaken by the Review Director as part of the tender evaluation process. The evaluation is basically an analysis of the contractor's proposed management control systems so as to determine the probability of the systems meeting the Criteria. The review will include use of applicable parts of the check-list (ANNEX D). If a contractor has proposed to use a previously accepted system, the Review Director will confirm that the previous acceptance was of an appropriate type (Development/production) that compliance with all relevant Criteria was demonstrated and that a current MOU exists.

9.2.8. **On-site Examination.** An on-site examination of potential contractor's proposed systems will not usually be required during the evaluation review. However, when any aspect of the system is not clearly understood, an on-site examination of that part may be necessary to clarify the contractor's intent. Any such review will be coordinated with other relevant Defence authorities including the Tender Evaluation Board and Project Authority. Care shall be exercised during the entire evaluation review process to ensure that the contractor and Defence have the same understanding of the system described in the contractor's tender. Data examples, using actual data in the case of existing systems, may be required to illustrate systems procedures and data flow.

9.2.9. **Coordination.** If the potential contractor's proposed system is in use under an existing contract with Defence, coordination with the relevant Project Authority should be maintained during the evaluation review process. If it is necessary to review plans and reports of the other contract, concurrence of that Project Authority will be obtained.

9.2.10. **Evaluation Report.** Following the CSCSC evaluation review, a report will be prepared which addresses the extent to which each prospective contractor's System Description in the tender adequately describes compliance with the Criteria. Any deficiencies will be described as to their nature, extent and perceived impacts. This forms part of the tender evaluation report on which source selection is based.

9.3. CONTRACTS

9.3.1. **CSCSC Contractual Provisions.** Where a contract requires CSCSC compliance, reference will be made to this Standard to the effect that the processes described herein are to be followed. Sample contract clauses are in ANNEX A. They require, inter alia, that:

a. the contractor shall use and demonstrate management control systems which meet the Criteria;

b. the contractor shall obtain prior approval of changes affecting the accepted management System Description before incorporation, if required by a MOU;

c. Defence shall have access to pertinent records and data associated with the management control systems; and

d. the Criteria shall be applied to selected sub-contractors as required by the contract.

9.3.2. **Review of Subcontractors' Systems.** Review and acceptance of subcontractors' management control systems is normally the responsibility of the prime contractor. This may be performed by Defence in coordination with the prime contractor when requested by either the prime contractor or subcontractor. It will normally be subject to equitable adjustment between the prime contractor and Defence and the Demonstration Team will include representatives from the prime contractor. Such review and acceptance will be accomplished in accordance with the procedures in this document and may lead to Defence validation of the subcontractors' systems.

9.3.3. **Subcontract System Acceptance.** In the event that a prime contractor reviews and accepts a management control system, the prime contractor should provide the subcontractor a written statement that documents the acceptance. Such acceptance will not constitute Defence acceptance and does not apply to other contracts or subcontracts on other Defence programs.

9.3.4. **Prior Acceptance.** Instances will occur where contractors' proposed management control systems were accepted by Defence in another contract of the same type (ie, development or production) at the same facility. When that system remains under Defence surveillance, the contractor will not be required to undergo a full Demonstration Review for 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 required by contract. Where a full Demonstration Review is not required, a Subsequent Application Review (SAR) is conducted.

9.4. REVIEW TEAMS

9.4.1. The Commonwealth will provide a team of personnel to conduct on-site reviews of the contractor's management control systems. The purpose of these reviews is to verify that the contractor is operating systems which meet the Criteria.

9.4.2. **Team Composition.** A Review Director will normally be appointed by FASCEP. Normally this will be the Director of Project Management Systems or his nominated representative who in turn will appoint a Team Chief. Where appropriate, other agencies will be requested to identify representatives with appropriate qualifications to serve as team members. Exceptionally, non-Defence personnel may be included in Review Teams. The team includes:

a. **Review Director.** The Review Director is in charge of the review process with responsibility for overall planning and the conduct of Reviews, visits and assessments. The Review Director furnishes policy guidance and interpretation of the Criteria as required by the Team Chief.

b. **Team Chief.** The Team Chief is responsible to the Review Director for the conduct of the Review, the selection of team members and the supervision of team efforts in reviewing the application of the Criteria by a specific contractors CSCSC.

c. **Team Members.** Teams normally will be selected from suitably qualified personnel in Defence. Where possible they will include representatives from the applicable project office and should include those personnel who will be engaged in surveillance after acceptance. Members will be administratively responsible to the Team Chief during the period of the review.

9.4.3. **Team Function.** The team is responsible for a rigorous assessment of the contractor's compliance with the Criteria or, in the case of a Subsequent Application Review, application of a previously accepted system. Such assessment includes review of all management control techniques used by all organisational elements which perform work on the contract.

9.4.4. **Team Organisation.** 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 qualifications of team members. However, the Team Chief will retain the prerogative to select and use any professional skills and methods considered necessary to accomplish an assignment

adequately.

9.4.5. Members will be full-time participants during CSCSC reviews. However, the team may be augmented with functional specialists to assist in specific aspects of a review. 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 project characteristics.

9.4.6. **Qualifications of Members.** Members should be appropriately trained (see below) and possess one or more of the following qualifications:

a. knowledge of the technical content of the project or contract;

b. knowledge of the principal engineering design and test requirements of the contract under review;

c. general industrial engineering/production control background;

d. accounting/auditing knowledge;

e. project planning and control experience;

f. management analysis and/or cost/price analysis experience; and

g. contract negotiation or administration experience;

9.4.7. **Training Qualification.** All members should receive specialised training, dealing with management control systems concepts, performance requirements, and interpretation, before participating as team members. Formal training in CSCS, and satisfactory completion of a *Review Team Members*' training course organised by Defence (or equivalent USA DoD training) are required. Such training should be supplemented by additional instruction to ensure the fullest comprehension of the task to be performed during the review. On-the-job training will be provided, when feasible, to enlarge upon background experience and classroom training for members not having previously participated in a review.

9.4.8. **Review Techniques.** ANNEX D provides a checklist for use by the team members in the examination of the contractor's CSCS. The checklist includes a restatement of the Criteria followed by specific questions or areas to be addressed by the Review Team. To clarify checklist items, formats should be developed by the contractor as illustrations prior to or during the review. ANNEX E provides typical formats for displaying team findings and supporting conclusions drawn.

9.5. DEMONSTRATION PROCESS

9.5.1. **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 to examine the contractor's plans for implementing compliant management control systems. This visit provides an early dialogue with the contractor on the review process. The contractor will be expected to make presentations to explain system design. The IV team will examine selected documents and procedures proposed by the contractor and identify areas of non-compliance and potential problems. During the visit, the schedule for the readiness assessment and full-scale review will be developed.

9.5.2. **Baseline Reviews.** A baseline review is normally conducted by the Review Director in conjunction with the Project Authority about 60 to 120 days after the effective date of the contract. The purpose of these reviews is to confirm satisfactory progress in extending the CWBS (see ANNEX A) and the allocation of budgets to higher level CWBS elements and cost accounts as the basis for performance measurement and reporting.

9.5.3. **Readiness Assessment (RA).** The readiness assessment is a visit, usually of four or five days duration, by core members of the Review Team to the contractor's facility. It is normally conducted one reporting cycle (one month) before the formal review to assess the contractor's progress and to determine its readiness to demonstrate fully integrated and compliant management

control system. It normally follows the same pattern as the formal review and assists both team and contractor preparation for the full-scale formal review. Any discrepancies should be identified for correction by the contractor .

9.5.4. **System Description Examination.** The contractor should have current written descriptions of the management control systems. Copies of these will be forwarded to the Review Director before the formal review. In the case of a Demonstration, the Review Team will examine the System Description to assess whether it appears to describe systems that, if properly implemented, should comply with the Criteria.

Formal Review.

9.5.5. **Preparation.** The formal Demonstration Review or SAR should be conducted as soon as possible after contract award. The timing is normally subject to satisfactory progress during the Baseline Reviews and RA. Prior to the review, it is desirable (but not mandatory) that:

a. the contractor has developed schedules and a complete performance measurement baseline for the work to be performed under the contract;

b. the contractor has completed at least two complete monthly accounting periods of performance against baseline budgets and schedules, and has submitted reports required by the contract, including where applicable, Cost Performance Reports (CPR) for these periods;

c. each subcontractor required to comply with the Criteria or to provide Cost Schedule Status Reports (CSSR), has submitted at least one set of reports to the prime contractor; and,

d. obvious significant deficiencies in the contractor's management control system operation have been identified and corrected.

9.5.6. **Procedure.** It is the contractor's responsibility to demonstrate compliance with the Criteria. However the review normally follows a standard pattern to facilitate the process. The Review Team examines working papers and documents to ascertain compliance with the System Description and Criteria and documents its findings. To facilitate this, the contractor will be required to make available budgeting, work authorisation, accounting and other functional documents which apply to the systems being reviewed. The contractor will also make available all appropriate internal planning and control documentation required for a comprehensive analysis of the adequacy of the system in relation to the criteria and the work under contract. All documentation must be current and accurate.

9.5.7. The contractor will demonstrate to the Review Team how the management control systems are structured and used in actual operation. This entails interviews with relevant personnel. Pertinent extracts of the System Description and operating procedures must also be available to all relevant areas of the contractor's organisation. Detailed operating procedures should delineate: responsibilities of operating personnel; limitations on actions; and, internal authorisation required.

9.5.8. **Activities.** The review will normally consist of five basic activities. These are:

a. an overview briefing by the contractor to familiarise the Review Team with the management control system identifying any changes which have occurred since the management system was last subjected to a Demonstration Review or subsequent application review;

b. a review of the documentation which establishes and records changes to the contractor's baseline plan for the contract. This includes work authorisations, 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;

c. a review of the reporting of cost and schedule performance against the baseline plan, along with appropriate analyses of problems and projection of future costs. Also an audit of the procedures used to prepare Cost Schedule performance data from the lowest level of formal reporting to the Report to the customer;

d. interviews with contractor managers to verify that the contractor's systems are fully implemented and are being used in the management of the contract and that the management systems are operated by competent personnel; and

e. an exit briefing by the Review Team covering the team's findings. During this briefing any open discrepancies should be discussed along with the agreed upon corrective action plan which establishes responsibility and a time-frame for corrective action.

9.5.9. **Duration.** Duration of a review depends on the scope, type, number of team members and the contractor's competence in demonstration. Typically, a Formal Demonstration will require a team of about 15 members for about 10 to 12 working days and a SAR is completed in four or five days by a team of about eight members.

9.5.10. **Compliance Assessment.** The Review Team will follow the evaluation and demonstration checklist (ANNEX D) to achieve an orderly, comprehensive and conclusive review. It may employ sampling techniques when it is not practical to review entire systems. Based upon the best judgment and advice available, the Team Chief will identify the cut-off point in any test when he considers that sufficient evidence has been obtained on which to base conclusive findings.

9.5.11. **Compliance and Corrective Action.** Instances of failure to meet Criteria will be formally documented in Discrepancy Reports (DRs). The contractor must take corrective actions as necessary to achieve compliance with Criteria. Any areas to be re examined will be clearly identified to the contractor by the Review Director. A schedule for developing solutions and for a subsequent review to confirm compliance will be agreed upon by the contractor and Review Director. Where the corrective actions cannot be completed by a contractually required date, the Review Director will refer the contractual aspects to the Project Authority.

9.5.12. **Management of Subcontractors.** The prime contractor is normally responsible for the review and acceptance of each subcontractor's management control system that requires application of CSCSC unless Defence has accepted that responsibility. The Review Director may hold open the review of the prime contractor should he fail to adequately discharge his obligations in this respect. Alternatively he may elect to close the review even though all relevant subcontractor's management control systems have not accepted because of such factors as 'subcontract not defined', or 'insufficient work in hand to date to permit evaluation'. In these cases, the Review Team must determine, as a minimum, that the procedures for review of subcontractor's systems and the plan for subcontractor compliance are adequate. The Project Authority may require later confirmation that the prime contractor has properly reviewed compliance as a Phase II Surveillance item, or a follow-up review by the Review Team may be planned.

9.5.13. **Subcontractor Review.** The reviewing authority must notify the Project Authority, the prime contractor's Review Director and the prime contractor, as appropriate four weeks in advance of any demonstration of a subcontractor's management control system. Representatives from both Defence and the prime contractor shall be entitled to attend or participate.

9.5.14. **Discrepancy Reports.** Deficiencies found in the review process are categorised by level as follows:

a. **Level 1.** Significant Criteria non-compliant deficiencies which directly affect performance measurement; or deficiencies resulting from failure to implement an approved Systems Description.

b. **Level 2.** Less significant deficiencies which may affect performance measurement, but are not significant enough to require correction before the review can be closed; or minor deficiencies which have little or no impact on performance measurement.

9.5.15. **Review Status.** Reviews are either 'Open' (still in process) or 'Closed' (satisfactorily completed). The review is normally closed by the Review Director when the Demonstration is completed and all Level 1 DRs are closed. In either event, however, the contractor must initiate a corrective action plan to resolve problems in a timely manner. Under normal circumstances, Level 1 deficiencies will require Review Team participation to verify satisfactory corrective action while Level 2 deficiencies may be closed by the Project Authority as a surveillance action.

9.5.16. **Report of Review.** Within 30 days of closing the review, a complete draft of the review report will be passed to the contractor and the Project Authority for information. A final review report will be forwarded after completion and approval of all corrective actions. The format of the report is in ANNEX F.

9.5.17. **Report Distribution.** Each report will normally contain a statement indicating that it contains proprietary data or commercially-sensitive information owned by the contractor and distribution of copies will be limited. Contents will not be disseminated outside Defence without the agreement of the contractor.

9.5.18. **Acceptance Procedures.** Acceptance of the contractor's management control systems is decided by the Deputy Secretary (Acquisition and Logistics) on the basis of the Demonstration Review report. He will formally advise the contractor regarding acceptance of the system. The first acceptance of a system constitutes 'validation'. Following any acceptance a Memorandum of Understanding (MOU) will normally be executed between Defence and the contractor concerning continuing compliance (see ANNEX G).

9.6. COMPLIANCE AFTER ACCEPTANCE

9.6.1. **MOU.** After acceptance of a contractor's management control systems, the contractor's System Description should be updated as necessary to describe accurately the system as accepted. A MOU may then be executed. Pertinent features of the MOU (ANNEX G) are described below:

a. The MOU is basically a statement of intent on the part of the contractor that it will maintain its systems in a compliant state and, on the part of Defence that it will, subject to satisfactory surveillance, continue to regard the systems as compliant and not require a full Demonstration Review of that type for subsequent contracts.

b. The MOU contains references to a description of accepted systems and sub-systems; it identifies facilities and locations; and provides for Commonwealth access to pertinent contractor records and data for surveillance purposes. Provision is also made to permit changes to accepted systems.

c. An MOU may be executed after the contractor's management control systems are applied to a single contract requiring application of the Criteria or it may be developed without an existing or pending contractual requirement when requested by the contractor or Defence, provided that a Demonstration Review has been successfully accomplished.

d. Applicable Demonstration Reviews may involve any contract in the facility where performance measurement systems are applied, provided that the contracts selected will ensure that a representative appraisal of the contractor's system is made.

e. When an MOU is entered into between the Department of Defence and the contractor, it will be executed in the context of a review report and formal acceptance.

f. An MOU will normally be limited to a single contractor facility and may be limited as to application to development or production contracts.

g. A contractor may respond to RFTs requiring CSCSC compliance by citing the MOU in the proposal.

9.6.2. **Surveillance.** Surveillance to ensure that contractors properly maintain their systems after acceptance (Surveillance Phase II) is normally a responsibility of Project Authorities and is described in CHAPTER 13. Indications that a contractor's system fails to comply with any of the Criteria can be cause for scheduling another review and may result in cancellation of the MOU. Specific discrepancies discovered as a result of a subsequent review or normal surveillance procedures should be corrected immediately. Contractor proposed changes to accepted management control systems should be submitted to the Review Director through a relevant Project Authority.

9.6.3. **System Development.** Acceptance of a contractor's management control systems as meeting the Criteria is not intended to inhibit continuing innovations and improvement of its systems. However,

contractors are obligated by MOU and or contract to maintain their systems in a state which satisfies the Criteria.

CHAPTER 10. CSCSC AND WORK TEAMS

10.1. WORK TEAMS

10.1.1. **Work Team Concept**. In recent years some contractors have diverged from the classical functional organisation philosophy and have established "work teams" or "cells". These work teams are typically assigned responsibility for the design and development of a specific deliverable or portion thereof and consequently tend to be aligned with the CWBS. Membership within any particular team may fluctuate over time as various skills (engineering disciplines) are required during the development of the product.

10.1.2. **Criteria and the Work Team.** The concept is not contrary to the Criteria but the Criteria do not specifically address how a contractor should organise his internal resources. The work team concept presents some challenges with regard to interpreting the Criteria's requirements. The following paragraphs, drawn from USA experience, are structured to sequentially address each Criteria category and provide guidance to contractors who wish to employ the work team concept and to assist Review Team members in evaluating a contractor's implementation of the Criteria in a work team environment.

10.1.3. **Organisation.** Size (dollar value, length, etc.) of cost accounts will continue to be used as one of the measures of the appropriateness of the level to which the contractual effort will be subdivided. This assures that the proper level of work breakdown has been achieved. A natural fallout of the work team concept may be the overall reduction in the number of cost accounts with a resultant increase in their size, duration and resource composition. This will result from grouping organisation elements, CWBS elements or a combination of both into larger, higher level cost accounts.

10.1.4. The basic nature of work packages (size, duration, resource composition) will not change. However, the number of work packages per cost account may increase. Work packages should be used to segregate different tasks, different resources, different functions.

10.1.5. Mixing of discrete effort and LOE tasks should be kept to a minimum to help ensure that performance on discrete tasks is not distorted. Because the cost account work content in a work team environment may tend to be larger than would otherwise be so, the determination as to whether or not LOE and discrete effort may be commingled should be based on a consideration of both dollar value and ratio of LOE to total cost account value.

10.1.6. In multi-functional/discipline work teams, data collection must be at a level which will permit LOE to be adequately separated from discrete effort. It may be necessary for data segregation of LOE and discrete effort to be accomplished at the level of labour rate application codes, such as department or labour category. Contractor procedures should clearly demonstrate that the separation of LOE and discrete effort provides valid performance measurement and reporting.

10.1.7. To ensure the proper resources are available to perform the cost account effort, cost account responsibility has traditionally been assigned to a functional manager with line authority over those performing the work. Since the preponderance of the effort in the cost account which is created in a work team environment is by its nature multi-functional, functional lines will inevitably be crossed. Even though the amount of multi-organisational effort is substantial in a work team environment, the work team concept centres around the precept that work authority will now shift from the functional organisation to the work team organisation. The work team manager will have authority over and managerial involvement with those performing the work.

10.1.8. Under a work team approach, the amount of multi-organisational work within a cost account is of less concern. Emphasis should be placed on the methods which are in place to authorise, monitor, assess and report performance measurement. It is not necessary for a work team member to report full-time to one work team leader.

10.1.9. **Planning and Budgeting.** In non-work team circumstances, it is practical to develop labour budgets based on direct labour rates at the cost account level. When work team cost accounts contain multi-organisational activity, labour rates must be applied below the cost account level. To ensure that the appropriate direct labour rates are applied to each activity, labour rates should be applied at the labour rate application code level selected by a contractor.

10.1.10. **Accounting.** After indirect costs are accumulated and allocated to contracts, they are applied at the level selected by the contractor. If the contractor elects to distribute indirect costs to cost accounts, then, when work team cost accounts contain multi-organisational activity, indirect costs must be applied below the cost account level. Whether or not the overhead costs are displayed at this level, the capability must exist to apply them to the appropriate base.

10.1.11. **Analysis.** The two components of any labour cost variance are rate variance and efficiency variance. In a work team environment, the contractor must demonstrate that these labour cost variance components are visible within the cost account. Accordingly, labour rate variances must be visible to the appropriate manager at the labour rate application level. Each affected Cost Account Manager on the program utilising that type of functional resource should assess this labour rate variance impact on each affected cost account. Labour efficiency variance analysis should be performed by each Cost Account Manager.

10.2. COST PERFORMANCE REPORTING

10.2.1. Under the work team concept contractors may structure and display their organisations in a number of different ways: as a functional organisation; as an autonomous program organisation; or as a matrix program organisation. Although the traditional definitions of functional organisations are engineering, manufacturing, etc., the term "organisational or functional category" on CPR Format 2 may, if acceptable to the Project Authority, include responsible or performing organisation.

10.2.2. The organisational or functional categories reflected on Format 4 of the CPR should coincide with those shown on Format 2 of the report. Further, equivalent man-months, man-weeks, man-days or man-hours should be indicated for the current reporting period, cumulative through the current period, and forecast to completion.

10.2.3. Depending upon the organisational structure reflected by the contractor operating under the work team concept, the required entries on Format 4 could be different from those that may be reflected on Format 2. In order to avoid misunderstandings, Format 4 reporting should be resolved during the negotiation phase. The contractor may find it necessary to report manpower requirements and usage to a different structure than the one established for management purposes. However, this is not perceived as a hardship on the contractor, since it requires the same insight into the time-phased labour rate application code/skill requirements as for internal management purposes, eg, application of overheads, resource management, rate impacts, facility requirements, etc.

CHAPTER 11. ADDITIONAL CONSIDERATIONS FOR PRODUCTION/MANUFACTURING CONTRACT APPLICATIONS

11.1. INTRODUCTION

11.1.1. **Criteria**. When the Criteria are applied to a manufacturing or production contract, it is not the intent to cause contractors to revise their internal control systems if these systems are adequate for planning and control purposes. Defence recognises that, in general, production contracts are better defined and performed in a different manner than their predecessor contracts in the development phase. Consequently, in a manufacturing or production phase application of the Criteria, certain latitudes are allowable in the interpretation of the Criteria in this environment. This CHAPTER is devoted to the special considerations necessary for proper Criteria interpretations in the production phase and it is focused on the manufacturing/production cost accounts and work packages.

11.2. COST ACCOUNTS FOR MANUFACTURING

11.2.1. Care should be taken to allow the contractor the flexibility to structure a production CWBS which is compatible with the manufacturing breakdown of the production hardware and accommodates any differences between the management required for the development phase and the management required for the production phase. This same need for compatibility with the manufacturing process and recognition of differences in the management of development and production, applies to the point of interface between the CWBS and the organisation levels of the contractor which are selected to be the cost account and performance measurement baseline levels for production work.

11.2.2. In general, it is more economical and effective to establish cost accounts for production at higher levels of both the CWBS and the organisational structure than would be the case for comparable development effort. During the production phase, it is important to allow the contractor flexibility in the points of interface between the CWBS and the manufacturing organisation levels. 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.

11.2.3. The lowest echelons of production management are primarily concerned with sustaining the required manufacturing throughput as defined by work orders and schedules issued to them. Cost and schedule management by contract or product is normally the responsibility of higher echelons of management within the contractor's production organisations. Management is typically supported by one or more production planning and control organisations which develop integrated schedules for the performance of all production work and prepare appropriate work orders. The planning and control of production typically is in terms of the major functional organisations responsible for material procurement and handling, component fabrications, and product assembly. Tooling, production engineering, quality, inspection and testing are assigned appropriate supporting roles. Within the major functional organisations, work orders usually cover a manufacturing lot of like items and are likely to cross the boundaries of lower level organisations as the manufacturing lot is moved through the various manufacturing processes.

11.2.4. The management of cost account work in a research and development or low-rate production environment should be assigned to a single responsible organisational element. 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. However, the cost account management function must always be fulfilled within the responsible manufacturing organisation, and a single responsible individual must always be assigned from that organisation to coordinate the management for 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.

11.2.5. The selection of too low an organisational level for the assignment of cost and schedule

management and analysis responsibilities can cause problems in two areas. First, it will be below the level at which cost and management capability and responsibility actually exist in the organisation. Second, it is likely to result in the generation of a substantial number of additional plans, documents and performance reports without significantly improving management control. A similar condition can arise if cost accounts are established at very low levels of the CWBS. If the two are combined (cost accounts located at low levels of both CWBS and organisation), the result may be increased costs for control system operation without additional benefits. Tracing of cost and schedule data to very low levels of detail (that is, part number and performing organisation) 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 organisations) within the overall manufacturing organisation usually results in the proper level of management.

11.2.6. The levels of the work breakdown structure which define appropriate production cost accounts in conjunction with the organisation 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 an aircraft production contract. The contractor typically will have a breakdown of the hardware by assembly, sub-assembly, component and part number. This breakdown normally will be aligned with the sequence of manufacturing operations followed in building the hardware. It can be of considerable use in determining the appropriate level for establishing cost accounts for production contracts. However, the lowest level of a hardware manufacturing breakdown, the individual part, is almost never the appropriate level for the cost account. Typically, the hardware sub-system, sub-sub-system or major assembly may be suitable levels for the cost accounts, depending on the product being produced.

11.3. MANUFACTURING WORK PACKAGES

11.3.1. **Composition**. A manufacturing work package is derived from the relationship between the work breakdown structure and the manufacturing organisational structure and represents a logical sub-division of this relationship. Manufacturing work packages may take a variety of forms, including:

a. a combination of several part numbers (that is, all parts going into one assembly may be a logical grouping for a work package of this type);

b. a single part number consisting of one or more shop releases, with each shop release, or combination thereof, being considered as a work package milestone;

c. a shop release, with each sequence, or combination of sequences, being considered as work package milestones;

d. an individual sequence;

e. a pre-determined combination of sequences;

f. a combination of purchase orders (that is, several related purchase orders issued to a single vendor being grouped), with each purchase order, purchase order item number, part number or delivery date, or combination thereof, being considered as work package milestones;

g. a purchase order consisting of one or more part numbers, with each purchase order item number, part number or delivery date, or combination thereof, being considered as work package milestones;

h. a purchase order item number, with each part number or delivery date, or combination thereof, being considered as work package milestones;

i. a part number (purchased), with the delivery date being considered as a work package milestone;

j. a sub-division or grouping of purchase order elements such as "purchase order-part number-delivery date"; or,

k. other logical product structure/manufacturing sub-divisions.

11.4. CONSIDERATIONS

11.4.1. **General**. In the definition and establishment of manufacturing work packages, proper recognition should be given to the characteristics of the production process as opposed to those of design and development. The most significant of these is the relative ease of measurement of most manufacturing work. Manufacturing typically produces a finite output in accordance with a detailed schedule. There are many reasonably accurate and objective techniques for measuring manufacturing performance. The normal production planning and control system usually includes several sub-divisions of the manufacturing work which provide a basis for acceptable performance measurement. The objective is to select as the "work package" the work sub-division which best satisfies the requirement for performance measurement. Following are some work package considerations in the manufacturing environment.

11.4.2. **Selection of Smallest Sub-division.** Since accurate measurement of manufacturing work-in-progress is not usually a problem, the most compelling reason for the selection of the smallest (shortest duration, least value) work sub-division as the production work packages is to minimise the need to make changes to the schedules or budgets of open (in-progress) work packages or packages scheduled to be started in the current accounting period, both of which are restricted by the Criteria in the interests of preserving a stable near-term planning and measurement baseline. However, the smallest formally-defined sub-divisions of manufacturing work are, in many production control systems, scheduled with definite dates only a short time before their start, which creates problems in satisfying the normal Criteria requirement for advance work package planning.

11.4.3. **Schedule Windows.** In many production control systems, longer term planning of the lowest work levels is done only in terms of "schedule windows", that is, time periods of a month or more in which the actual work performance of the "package" will consume only a fraction of the total time, or of "complete by" dates. In some control systems, the formal scheduling of the lowest level of work sub-division may not exceed this degree of precision at any point. Where systems do provide for the establishment of start and completion dates for smaller sub-divisions of manufacturing work, these dates are frequently subject to in-progress revision to achieve efficient day-to-day work-loading of the performing organisations, and to reflect current schedule priorities.

11.4.4. **Large Work Sub-divisions.** The use of large work sub-divisions to satisfy the Criteria work package requirement does not avoid this problem, since the type of schedule changes described are still internal changes to the package when it is in process. Further, the cancellation (closing) and reissue 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).

11.4.5. **Rescheduling of Open Manufacturing Work Packages.** Under these conditions, 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 which 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. This flexibility for rescheduling applies only to manufacturing work packages. No changes may be made to BCWS in open, non-manufacturing work packages.

11.4.6. **Use of Objective Indicators.** It is emphasised that the term "work packages" is generic and is used to identify discrete effort tasks. In some production control systems involving repetitive manufacturing operations, objective indicators reflecting groups of tasks may be used and viewed as work packages. For example, 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.

11.4.7. **Anticipated Learning.** A contractor must utilise anticipated learning when developing time-phased BCWS. 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.

11.4.8. **Detailed Planning and Control.** It must be stressed that the measurement of performance of manufacturing work through the use of objective indicators 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 organisations 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. This is essential if schedules and efficient performance are to be maintained.

11.4.9. **Objective Indicator Examples.** 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; or

c. an input-output measurement system which compares planned levels and actual performance.

These 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 the means of measurement is integrated with the contractor's baseline plan for the performance of the manufacturing work.

11.4.10. **Baseline Plan.** The contractor must still have 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 that supports the achievement of higher level schedules including those specified for cost accounts. They 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, and values must reconcile to 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.

11.4.11. **Scheduling Frequency.** The performance measurement indicators (milestones, etc.) must be scheduled with sufficient frequency to provide a basis for accurate performance measurement. This entails provision for measurement which supports monthly reports of cost and schedule performance status at the cost account level. To do this, it is normally necessary to measure performance of tasks below the cost account in a way which accurately indicates the performance in each report period. For example, this can be done by scheduling performance measurement indicators at least bi monthly (every two months) or by providing for a means of accurately assessing work-in-progress when indicators are scheduled at greater than bi-monthly intervals.

11.4.12. **Maintenance of Baseline Stability.** The restrictions on changes to schedules for manufacturing performance measurement indicators are equivalent to those regarding changes to manufacturing work packages specified in paragraph 11.4.5 above. Rescheduling must be constrained so as to maintain consistency with key production schedule dates. Procedures should be established which provide the necessary constraints. There should not be changes to the budgets or values assigned to performance measurement indicators which are scheduled to occur in the current monthly accounting period. This is required in order to maintain baseline stability.

CHAPTER 12. REPORTING

12.1. GENERAL REQUIREMENTS

12.1.1. **Requirement for Reporting**. The inclusion in a Request for Tender or contract of a requirement to meet the Criteria is not, of itself, a requirement for the delivery of cost and schedule performance reports. Reporting requirements will be separately specified in the Request for Tender and in the contract. However, the five formats of the Cost Performance Report (CPR), see ANNEX G, are designed to report data from compliant systems and these are to be preferred for the appropriate types of contract. DEFPUR 101 provides for CPR reporting in contracts: see ANNEX A.

12.1.2. **Reporting Data Source.** Regardless of the type of report, the Criteria do require that the contractor uses data from approved management control systems for internal management control and for reports to the Project Authority.

12.1.3. **Reporting Data.** The Criteria require that the contractor's performance management control system must provide timely data which effectively relate cost, schedule and technical progress within the framework of the CWBS and the contractor's organisation. As a minimum, the contractor's system must be capable of providing, at least monthly, such information as:

a. BCWS, BCWP and ACWP;

b. actual indirect costs and budgeted indirect costs;

c. budgeted cost at completion and estimated cost at completion;

d. significant variances resulting from the analysis of these data. These variances should be identified in terms of labour rate and efficiency variances, material price and usage variances and deviations from overhead budgets, together with the reasons for the variances and the impact on the CWBS and organisational elements to which resources have been allocated;

e. cost and schedule variance trends, analysed and reconciled to the project cost at completion and projected contract milestone completion dates;

f. the time-based schedule, significant differences between the planned and actual achievements and the reasons for those differences;

g. narrative variance analysis including disclosure of significant contract/program problems, issues and corrective action taken and planned;

h. changes to the baseline and reasons;

i. manpower forecasts; and

j. changes to management reserve, undistributed budgets, and reasons.

12.1.4. **Relationship with CWBS.** A CWBS which has been prepared in accordance with guidance provided in US DoD MIL-STD-881 (latest reversion or as superseded by DEF(AUST) 5664) constitutes the basic framework against which the data items selected are to be reported by the contractor's management control system. Even though reported cost and schedule data may, for example, be required only at summary levels, all such data must comprise traceable accumulations which account for work performed and resources expended at appropriate lower levels.

12.1.5. **Reporting Formats.** Regardless of the format of reports negotiated, all performance measurement information must be derived from the contractor's internal management control systems.

12.1.6. **Variance Reporting.** When performance reports are required to be delivered, the Request for Tender and the Contract must specify the CWBS items to be reported and the variance thresholds (quantitative or exception) beyond which cost and schedule variances should be disclosed and discussed. (see ANNEX A) Separate variance thresholds will normally be negotiated at "cost" for current period, cumulative, and at completion data.

CHAPTER 13. SURVEILLANCE

13.1. **PURPOSE**

13.1.1. **Surveillance**. Surveillance is the process whereby a contractor's management control system is subject to recurring examinations to ensure that it continues to meet the Criteria and, in respect of a particular contract, generates valid and timely data. Surveillance may be internal (by the contractor) or external (by the customer - normally Defence).

13.1.2. **Guidance.** This CHAPTER provides guidance for personnel responsible for surveillance of contractor's performance measurement systems. It is general guidance which should be adapted to specific situations as they arise. Detailed procedures for surveillance of a particular contractor's management control system should be developed by Project Authorities in consultation with the Review Director. Procedures should be consistent with this Standard.

13.1.3. The guidance furnished herein will provide assistance to:

a. Project Authorities in formulating surveillance plans and determining resource requirements;

b. surveillance personnel in accomplishing their surveillance functions; and

c. contractors in understanding the requirements of the Defence surveillance program and responding to them.

13.1.4. **Surveillance Policy.** In respect of contractors with contracts requiring Criteria compliance, it is Defence policy to:

a. perform recurring reviews to evaluate the effectiveness of a contractor's policies and procedures to assure that the contractor's management control system continues to meet the Criteria and generates valid data; and

b. base such reviews on recurring evaluation of internal management control practices and selective tests of internal and external reported data during the life of the contract.

13.2. **CONCEPTS**

13.2.1. **Phases.** Surveillance begins with the award of the contract, continues through system demonstration and acceptance (Phase I), and extends throughout the duration of the contract (Phase II). (See FIGURE 13-1.) Phase I surveillance is conducted in conjunction with the Review process by the Review Director in consultation with the relevant Project Authority. The surveillance plan for Phase II should be formulated by the Project Authority during Phase I and fully implemented after system acceptance. Phase II surveillance is the responsibility of the Project Authority who should appoint a Surveillance Monitor. To facilitate the coordination of, and to promote consistency in the implementation and surveillance process, policy guidance on surveillance activities should be sought from DPMS who should also be represented on surveillance activity from time to time during the course of a contract.

Evaluation of Proposals (Pre-Award)	Implementation Visit	Baseline Review	Readiness Assessment	Demonstration Review	Acceptance	Surveillance Phase II (Project Authority)
	Surveillance: Phase 1 (Review Director/Project Authority)					

FIGURE 13-1. Typical Phases of C/S Implementation and Surveillance

13.2.2. **Objectives.** The objectives of surveillance are:

a. To ensure that the contractor's management control system continues to:

1) provide valid and timely management information;

2) comply with the Australian Cost Schedule Control Systems Criteria;

3) provide timely indications of actual or potential problems; and

4) provide baseline integrity.

b. To ensure that the contractor's external cost and schedule reports:

1) contain information that is derived from the same data base as that used by contractor's management;

2) contain explicit and comprehensive variance analyses including proposed corrective action in regard to cost, schedule, technical, and other problem areas; and,

3) contain information that depicts actual conditions.

13.2.3. **Surveillance Scope.** The scope of surveillance includes:

a. understanding the contractor's internal management control system;

b. monitoring the contractor's implementation of the management control system on the applicable contract;

c. participating in implementation visits, readiness assessments, and reviews; and monitoring the contractor's corrective action following each of these activities to bring the contractor's management control system into compliance with the Criteria;

d. monitoring, throughout the life of the contract, the continuity, consistency, reliability, and effectiveness of the system in operation. This function includes:

1) assuring that the accepted system is in fact being used in the management of the project;

2) evaluating changes to the accepted system to assure continuing compliance with the criteria or reporting standards;

3) conducting periodic system reviews, evaluations, and tests to ensure that the quality of the accepted management control system is maintained; and

4) informing the contractor of any uncorrected deficiencies which affect overall acceptability of the contractor's management control system, and requesting that corrective action be initiated;.

e. assuring that contractor-prepared reports (internal and external) identify current and potential problems;

f. reviewing, evaluating, and processing submitted contractor performance measurement reports; and

g. monitoring the contractor's corrective actions required as a result of surveillance.

13.3. **ADMINISTRATIVE ASPECTS**

13.3.1. **Surveillance Responsibilities.** The Project Authority will participate in reviews of the contractor's management control system and subsequently will perform the required Phase II surveillance. DPMS is responsible for providing general guidance regarding surveillance, conducting staff training, and resolving issues of compliance raised during surveillance.

13.3.2. **Surveillance Plan.** A surveillance plan will be prepared which describes how the Project Authority will carry out surveillance. Development of the plan may be discussed with the contractor, and if the Project Authority and DPMS have no objection, a copy of the plan may be provided to the contractor. This plan should be approved by the PA and should be implemented immediately after the Demonstration or Subsequent Application Review. Development and content of the surveillance plan are covered in paragraphs 13.9.1 et seq.

13.3.3. **Accepted System Description.** After acceptance of a contractor's management control system, the System Description is updated to reflect the accepted management control system. The contractor is then obligated to maintain the management control system in accordance with the accepted

System Description. However, this is not intended to inhibit continuing innovations and improvement of the management control system.

13.3.4. **System Changes.** The surveillance effort must consider changes and improvements that the contractor may wish to make to his accepted management control system. Such requests for changes should be promptly evaluated for compliance with the criteria or reporting standards. The proposed changes will be submitted by the contractor to the Project Authority. Changes proposed by the contractor also require FASCEP approval. The Project Authority should advise the contractor of the acceptability of such proposed changes within 60 days after receipt from the contractor. A copy of the accepted change to the system will be forwarded to DPMS. If these vary the system as previously accepted and documented in the System Description, the Project Authority will endorse the proposed change and forward it to FASCEP for formal approval to vary the accepted system and System Description.

13.4. **DEVIATIONS**

13.4.1. **Surveillance System Discrepancies.** During surveillance, if the contractor's practices are found to differ from the accepted System Description or if unilateral changes to the accepted management control system have been made without Defence approval, the changes will be analysed and Project Authority who will notify DPMS and require correction of deficiencies.

13.4.2. **Identification as "System Deficiencies".** If deficiencies are discovered in the contractor's compliance with the accepted management control system, they will be identified as system deficiencies to differentiate them from specific contract problems. The contractor will be advised of the system deficiencies by the Surveillance Monitor. The Monitor will follow-up on a timely basis to determine when action taken resolves each discrepancy.

13.4.3. **Notification of Deficiencies.** Contractor's management systems should be as previously accepted by Defence. When surveillance personnel determine that the contractor's accepted management system is not as accepted, the contractor and DPMS will be promptly notified of the specific areas of deviation. DPMS is to be notified of all system and major program discrepancies and the Project Authority will seek advice regarding items of disagreement if the contractor disputes non-compliance. In those cases where problems cannot be resolved, the discrepancy will be elevated to FASCEP for resolution.

13.4.4. **Appeals.** The burden of proof is on the contractor to demonstrate that the management control system and its operation, in fact, comply with the system as accepted. If a contractor is notified of a discrepancy and the contractor disagrees, he may appeal through the Project Authority to FASCEP. If the contractor is unable to obtain agreement, he will be notified through the Project Authority to take corrective action within 60 days. The Project Authority will monitor the corrective actions. If inadequate action is taken by the contractor, the acceptance of the management control system will, if conditions warrant, be withdrawn by DEPSEC A&L.

13.5. **SUBCONTRACTORS**

13.5.1. **Surveillance - Subcontracts.** When a subcontractor is contractually required by the prime contractor to comply with Criteria, surveillance is a basic responsibility of the prime contractor as part of the total management of the subcontract. The Project Authority's function normally is limited to evaluating the effectiveness of the prime contractor's management of the subcontract. However, there may be occasions when a prime contractor will request Defence assistance to perform or assist in performing surveillance. Such assistance should generally be provided only when:

a. The prime contractor is unable to accomplish the required surveillance because it would jeopardise the subcontractor's competitive position or when proprietary data is involved; or

b. 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

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

13.5.2. **Subcontract Surveillance - Responsibilities.** When it is in Defence's best interest to perform surveillance for the prime contractor, such surveillance will be performed by the Project Authority at the subcontractor's facility. A Memorandum of Understanding (MOU) should be executed between Defence and the subcontractor which delineates surveillance activities and responsibilities.

13.6. SURVEILLANCE PERSONNEL

13.6.1. **Personnel Qualifications.** Individuals involved with surveillance should receive specialised training dealing with management control systems concepts, cost performance measurement requirements, interpretation of the Criteria and surveillance of management control systems at the earliest practical date. Normally such personnel should be qualified to participate in Reviews (see CHAPTER 8) and, where possible should have participated in the Demonstration or Subsequent Application Review for the contract under surveillance. Specific courses dealing with the planning and executing of a plan for surveillance, the analysis of contractor performance measurement data, and the maintenance of systems discipline within the contractor's organisation are available in the USA and are being introduced in Australia. All training should be supplemented by additional instruction and on-the-job training to enlarge upon background experience and classroom training wherever possible.

13.7. RECORDS AND REPORTS

13.7.1. **Surveillance Monitor.** A single individual is normally assigned the overall responsibility for the coordination and accomplishment of the total surveillance program. This individual is the Surveillance Monitor who should be selected by the Project Authority on the basis of background and knowledge. The Surveillance Monitor should also possess the ability to relate contract and program performance and assure that the data presented by the contractor to Defence are accurate, timely, and consistent with the contractor's internal data. When practicable, the Surveillance Monitor should be a Project Authority representative who participated in the Demonstration Review or SAR.

13.7.2. **The Report.** The Surveillance Monitor should prepare a periodic (normally monthly) report of surveillance activities and results. Although a thorough evaluation of the contractor's monthly CPR report may not be required, sufficient sampling of significant data items should be evaluated to assure data prepared by the contractor are timely, are accurate, and reflect the actual conditions. Reports should provide clear statements of the scope of review and any deficiencies noted, together with recommendations for their correction. Comments should also be provided regarding the results of discussions with the contractor's representative on deficiencies disclosed. To ensure that all pertinent data have been considered, the findings and recommendations should be discussed with the contractor when appropriate, prior to issuance of the report.

13.8. RESPONSIBILITIES

13.8.1. **General..** Surveillance requires participation and full cooperation of the Project Authority, DPMS, and the contractor. If a surveillance program is to be successfully conducted, a spirit of mutual cooperation and proper rapport must exist among all interested parties in their interactions.

13.8.2. **Project Authority.** The Project Authority is primarily responsible for surveillance The application of the Criteria is not intended to replace any of the techniques, functions, or responsibilities normally undertaken by the Project Authority. However, it does facilitate the use of the more classical methods of contract administration. For example, the monthly CPR, where required by contract, shows the Cost Schedule status of the contract for the previous monthly report period, highlights significant Cost Schedule variances that have occurred and their probable causes. The data in the CPR quantify the magnitude of existing problems and potential problems and indicate Cost Schedule trends which are used for estimating contract completion costs. Reliable data in this format are very useful for effective contract administration as well as project decision-making. The responsibilities of the Project Authority in relation to surveillance of a

contractor's system include the following:

a. participating in pre-acceptance surveillance activity (Phase I);

b. performing post-acceptance surveillance activity (Phase II) to ensure continuing operation of the contractor's accepted performance management control system;

c. requesting DPMS assistance in the resolution of contractor's systems problems and requested changes, and keeping DPMS informed relative to actions and matters which could affect system surveillance;

d. assisting resolution of problems cited in surveillance reports by providing required support to the Surveillance Monitor; and

e. apprising DPMS of the adequacy and usefulness of surveillance reports, and where necessary, coordinating required changes to reporting practices.

13.8.3. **The Surveillance Monitor.** The Surveillance Monitor will assure that the results of surveillance program efforts are documented and maintained as part of a chronological record of the contract. A surveillance file will be established to contain all pertinent data and information regarding the surveillance program. The file should include areas reviewed, findings, actions taken, and results.

13.8.4. The Surveillance Monitor has the following responsibilities:

a. assuring Project Authority coordination with the Review Director in the preparation of surveillance plans to assure that surveillance is performed in a systematic manner;

b. executing a program of surveillance to assess continuity and consistency in the operation of the contractor's accepted management control system;

c. performing recurring evaluations of the effectiveness of the contractor's policies and procedures;

d. performing selective tests of the contractor's cost and schedule data flow and external performance measurement reports to determine validity of reported data;

e. assuring that the cost, schedule, and contract-related financial and program status reports submitted to the Project Authority are timely and accurate, and depict actual conditions;

f. calling upon the assistance of DPMS if required to assist in accomplishing the surveillance plan;

g. assuring accurate and adequate files are maintained relative to surveillance matters;

h. acting as the point of contact in matters relative to cost and schedule control surveillance within the Project Authority;

i. assuring that DPMS is fully advised of status of cost and schedule control surveillance and any major problems pertaining thereto; and

j. preparing and submitting surveillance reports.

13.8.5. **Other Surveillance Personnel.** There are a number of other Defence personnel who examine various aspects of the contractor's capability to complete the contract successfully. These include other Project Staff examining engineering, production, finance aspects, quality assurance personnel and DPMS personnel undertaking performance analysis. The Surveillance Monitor should maintain regular contact with these personnel to discuss items of interest or concern to enable the planning of future surveillance effort. These discussions will enable the Surveillance Monitor to determine the scope, depth and areas of surveillance activities for the subsequent period. The Surveillance Monitor may also be able to suggest to the other personnel certain areas of the contractor's system that may need more in-depth examination.

13.9. PLANNING AND PERFORMING SURVEILLANCE

13.9.1. **Planning for Surveillance.** Planning for surveillance should begin as soon as it is anticipated that a contract will be awarded. Active surveillance should commence immediately after contract signature (Phase I, the prime responsibility of DPMS) to ensure that management control system

implementation is satisfactory and to highlight any obvious system deficiencies. Continuing surveillance (Phase II, the prime responsibility of the Project Authority) should be directed toward all procedures and functions of the contractor's cost and schedule control system. From immediately after contract award, through all phases of system implementation and demonstration, and until system acceptance, activity should be devoted to gaining a full understanding of the contractor's management control systems, to monitoring the implementation of CSCSC, and to planning and developing the comprehensive surveillance plan for Phase II. The surveillance plan should define the surveillance to be performed.

13.9.2. **Development of the Surveillance Plan.** Because the Criteria do not prescribe a specific management control system, each Project Authority will be monitoring a unique system consisting of different scheduling, budgeting, cost accumulation, etc. sub systems. The main purpose of the surveillance plan is to provide an organised and comprehensive set of guidelines and techniques for use by cognisant Project Authority personnel in performing surveillance on the management control system. Primary considerations in the design of the surveillance plan are the specific contractor management control system being evaluated, the contractual requirements, the desires of the Project Authority, and the availability of qualified personnel.

13.9.3. **Content of the Surveillance Plan.** The surveillance plan will normally consist of two basic sections, one devoted to general guidance and management responsibilities, and one devoted to specific procedures and techniques. The first section should describe organisation responsibilities, reference documents, frequency of reports, the review cycle and other general administrative information. The second section should outline and discuss techniques of accomplishing surveillance, tests to be used, areas to be evaluated, and functional skills within the Project Authority to be used.

13.9.4. **Requirements of the Surveillance Plan.** The intent should be to effectively examine the contractor's complete system at least once during a 12 month period. This will require:

a. evaluating all the important features and disciplines of the contractor's accepted management systems;

b. performing this evaluation in each involved major functional group of the contractor's organisation; and

c. performing this evaluation in the most active areas of the work breakdown structure.

The surveillance plan should contain procedures for conduct of surveillance throughout the life of the contract. However, the plan should not be so rigid as to result in routine mechanical reviews. Instead it should be flexible and require periodic re-evaluations to determine redirection of emphasis necessary to meet changing conditions. It should provide for adjustment in effort and shift of emphasis as the program progresses and as familiarity with and confidence in the contractor's management control system is gained.

13.10. SURVEILLANCE DURING PHASE I

13.10.1. Since contract decisions must be made from the day of contract signature, contract administration including surveillance, must also begin upon contract signature, to assure the Project Authority that the provisions of the contract are being met despite the fact that the contractor's management control system has not yet been reviewed or demonstrated and found acceptable. This is the primary responsibility of the Project Director.

13.11. SURVEILLANCE DURING PHASE II

13.11.1. **Objective.** Phase II surveillance should ensure that the contractor's management control system continues to meet the contractual objectives. During Phase II, surveillance personnel should concentrate their activities on management control system reviews, and evaluation of contract data and reports.

13.11.2. **Surveillance Steps.** In evaluating the contractor's management control system during Phase II, surveillance personnel must always remain cognisant of the policy governing the requirement for

CSCSC. In order to assure that these requirements continue to be met, surveillance personnel may follow a number of surveillance steps:

a. *Evaluate the Management Control 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 management control system supported by detailed operating procedures. Once accepted, the System Description and related procedures form the basis for the 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 utilisation of the system and data is appropriate. In the course of surveillance, the Monitor should be continually alert to contractor practices, procedures, and systems that do not meet the relevant requirement.

b. *Evaluate System Changes.* Evaluate all changes to the accepted system. The Surveillance Monitor must be made aware of all changes to the contractor's management control system. Changes will be evaluated as to compliance with the Criteria, impact on the integrity of the management control system, effect on contractual provisions, and cost of implementation. The proposed changes should be subjected to an immediate and exhaustive evaluation by DPMS, the Surveillance Monitor, and the Project Authority to determine acceptability and to allow for rapid implementation if approved. The purpose is to detect those changes to an accepted management control system which are not in compliance with the Criteria and may therefore impact contract requirements. In addition, surveillance personnel should always be concerned that the System Description accurately describes the accepted system and be vigilant for unauthorised contractor departures from the accepted system. Deviations should be brought to the immediate attention of DPMS, the Project Authority, and the contractor.

c. *Verify the Data Base and System Discipline*. On a recurring basis, surveillance personnel should perform evaluations as to the validity and traceability of the contractor's cost and schedule data base. 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, 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 management control system involved. In addition, by tracing the cost and schedule data flow the Monitor is able to determine that all applicable sub-systems 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 management control system. Differences isolated 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.

ANNEX A. EXAMPLES OF CSCSC REQUEST FOR TENDER AND CONTRACT REQUIREMENTS

A.1. The Defence Purchasing Manual (DEFPUR 101) contains standard clauses concerning CSCSC that may be included in RFTs and Contracts when required. Samples of the relevant clauses are shown below.

REQUEST FOR TENDER CLAUSES.

7.8 Cost Schedule Control System (Optional Clause)

7.8.1 The successful tenderer will be required to maintain and use a Cost Schedule Control System (CSCS) within the contract price in accordance with Clause 12.4 in the draft Contract. For the purposes of evaluation tenderers are to submit with their tenders information detailing and/or substantiating a description of the general organisation, management and procedures designed to comply with the specified CSCS standards.

7.8.2 Tenderers are required:

a. to submit at Annex C, DID 029, a declaration that all existing management procedures have been examined by tenderers to establish their suitability for meeting the Cost Schedule Control requirements contained within this Request for Tender; and

(i) if the existing system is found to be suitable, tenderers provide a declaration that the existing system complies with the requirements; or

(ii) if shortcomings are found in the existing procedures, tenderers are to document such shortcomings and provide details of proposed corrective action; and

b. to submit to an assessment by the Commonwealth, on site if necessary, of their Cost Schedule Control System for compliance with, or potential to comply with, the specified standards as part of the tender evaluation.

7.9 Contract Work Breakdown Structure (CWBS) (Optional Clause)

7.9.1 The successful tenderer will be required to comply with principles set forth in the version current at the Effective Date of US MIL-STD-881, Work Breakdown Structures For Defense Materiel Items. Tenderers are to propose at Annex C, DID 030, a preliminary CWBS based on the summary Work Breakdown Structure detailed in the Statement of Requirement. Tenderers shall extend this summary WBS in as much detail as necessary to identify the structure of the work effort to successfully achieve the end objective of the contract."

DRAFT CONTRACT CLAUSES

12.4 Cost Schedule Control System (Optional Clause)

12.4.1 Within the period specified in the Contract Schedule, the Contractor's Cost Schedule Control Systems meet, and thereafter continue to meet, Australian Cost Schedule Control Systems Criteria DEF(AUST)5655. The processes described in the Australian Cost Schedule Control Systems Implementation Guide, DEF(AUST)5657 for the review and acceptance of the Contractor's Cost Schedule Control Systems are followed by the parties.

12.4.2 The Contractor facilitates surveillance of its Cost Schedule Control Systems in accordance with the Australian Cost Schedule Control Systems Implementation Guide, DEF(AUST)5657.

12.5 Contract Work Breakdown Structure (CWBS) (Optional Clause)

12.5.1 The Contractor complies with the principles set forth in the version current at the Effective Date of US MIL-STD-881 Work Breakdown Structure (WBS) For Defense Materiel Items. The summary WBS detailed in the Statement of Work and Dictionary form the basis for preparation of the CWBS by the Contractor.

12.5.2 The Contractor:

a. within 60 days of the Effective Date, extends the summary WBS in as much detail as necessary to identify the structure of the work effort and define Cost Accounts; and

b. within 120 days of the Effective Date, extends the summary WBS in as much detail as required to define the work effort necessary to successfully achieve the end objective of the Contract.

12.5.3 On approval of the CWBS by the Project Authority, it;

a. is used by the Contractor as the framework for Contract planning, management and status reporting, and for estimating cost, schedule and technical achievements;

b. describes its elements in a CWBS Dictionary and Index which have specific identification to discrete items of the Supplies and any specification(s) contained in the Statement of Work; and

c. is used in production of the Supplies and represents all the Contractor's costs.

12.5.4 The Contractor identifies subcontractor activities in a WBS separate from, but integrated into and identifiable within, the CWBS.

12.5.5 Prior approval to change to CWBS is not required for elements below the reporting level provided the Project Authority is notified within 60 days of the changes being made, and the changes are consistent with the summary WBS and US MIL-STD-881.

12.5.6 The Dictionary for the CWBS is progressively expanded by the Contractor as required for the management of the work under the Contract. Lower levels of the CWBS are developed to delineate Cost Account packages which are identified and maintained in a responsibility assignment matrix.

12.6 Cost Schedule Performance Reporting (Optional Clause)

12.6.1 The Contractor submits to the Project Authority a monthly Cost Performance Report (CPR), in CPR Formats 1, 2, 3, 4 and 5 in accordance with the United States Department of Defense.

12.6.2 CPR Format 1 displays data for elements of the CWBS:

Level 1: All

Level 2: All

Level 3: WBS

WBS

etc....

12.6.3 The threshold for variance reports in CPR Format 5 is determined by percentage and/or currency variation and varies with the Contract progress as follows:

Project % Complete	% Margin (+/-)	and/or	$ Threshold
0-25%			
26-75%			
76-100%			

12.6.4 The Contractor submits the report to the Project Authority within 14 days of the expiry of each month. The report may reflect data at the end of the month or other accounting period used by the Contractor, but so as to be consistent throughout the work under the Contract.

12.6.5 If the Project Authority notifies the Contractor on the basis of any Cost Performance Report that it has failed to maintain satisfactory progress in work under the Contract, the Contractor takes such measures as are necessary to reestablish progress to the satisfaction of the Project Authority. The Contractor advises the Project Authority of the measures taken and reflects the results of such measures in subsequent reports.

12.6.6 Any reports submitted by the Contractor in relation to a Cost Schedule Control System that is not validated contain a notation to that effect.

12.7 Subcontractor Cost Schedule Control Requirements (Optional Clause)

12.7.1 **CSCSC Flowdown.** If the subcontract requires work in excess of 12 months and the subcontract price exceeds $40m for development contracts and $100m for all other contracts, the subcontractor maintains and uses in the performance of the subcontract a Cost Schedule Control System in the same terms as required of the Contractor under the Contract and as described in the Australian Cost Schedule Control Systems Implementation Guide (ACSIG), DEF (AUST) 5657.

12.7.2 **CSSR Flowdown.** The Contractor shall require subcontracts who are likely to be engaged in work in excess of 12 months and the subcontract price exceeds $20m, but is less than $40m for development contracts and $100m for all other subcontracts to operate a Cost Schedule Status Reporting system in accordance the Cost Schedule Status Report Specification and Implementation Guide DEF(AUST)5658.

12.7.3 The Project Authority may require, as a condition to the approval of any subcontract, that the subcontract contains provisions requiring the subcontractor to furnish to the Contractor Cost Performance Reports as follows:

a. if the subcontract requires work in excess of 12 months and subcontract price exceeds $40m for development contracts and $100m for all other contracts, the subcontractor provides a Cost Performance Report in CPR Formats 1, 2, 3, 4, and 5;

b. if the subcontract requires work in excess of 12 months with a subcontract price of more

than $20m but less than $40m for a development contract and less than $100m for all other contracts, the subcontractor provides a Cost Performance Report in CPR Formats 1, 3 and 5; and

c. if the subcontract contains critical tasks agreed between the Contractor and the Project Authority, the subcontractor provides Cost Performance Reports in CPR Formats 1, 3 and 5.

12.7.4 The Contractor incorporates data from subcontractor's cost performance reports required by the Contract in its own cost performance reports to the Project Authority, and upon request, provides the Project Authority with a copy of the subcontractor's reports.

12.7.5 The Contractor establishes procedures which furnish for all subcontractors others than those which are required to provide cost performance reports:]

a. adequate indicators of subcontractors performance; and

b. identification, cause and impact of subcontractor schedule or technical problems.

ANNEX B. MEMORANDUM OF UNDERSTANDING FOR CSCSC

MEMORANDUM OF UNDERSTANDING FOR CSCSC

This Memorandum of Understanding entered into as of *date of MOU* establishes the basis of an understanding between the Commonwealth of Australia, hereinafter referred to as "the Commonwealth", and *name of contractor* , hereinafter referred to as "the Contractor", regarding the implementation and maintenance of management control systems conforming to the Australian Cost Schedule Control System Criteria as promulgated DEF(AUST) 5655.

WHEREAS, the Contractor has demonstrated certain management control systems and sub systems as identified and defined in the Project Management System Description dated *date of document*.

WHEREAS, the Commonwealth, by letter dated *date of advice* based on the demonstration review report dated *date of report,* did accept such systems and sub systems as compliant with the CSCSC.

NOW IT IS UNDERSTOOD that such systems and sub systems which have been validated as indicated above, together with approved changes thereto, shall continue to be used by the Contractor and shall apply to future contracts which may be entered into between the Contractor and the Commonwealth which by the terms of those contracts require compliance with the CSCSC; and

BE IT FURTHER UNDERSTOOD THAT:

(1) Contractor-proposed changes to those accepted systems and sub systems will be submitted to the applicable Project Authority for review; and for approval or disapproval by the Commonwealth.

(2) The Contractor will provide routine access to pertinent records and data in order to permit adequate surveillance of the systems and sub systems.

Nothing in this Memorandum of Understanding is intended by the parties to create binding legal obligations to enter into any agreement for the acquisition or supply of any goods or services (including any proprietary rights) or any other agreement whatsoever.

_____	_____
Deputy Secretary *Acquisition & Logistics*	*Chief Executive* *Contractor*
date	*date*

ANNEX C. CSCSC NEGOTIATION CHECKLIST

C.1. Listed below, by Criteria category, are some CSCSC-related issues that should be raised during the negotiation of a contract which requires compliance with the Criteria.

a. Organisational issues:

1) Timing and submittal of the CWBS, Index, and Dictionary and Defence approval of same

2) Subcontractor CSCSC flowdown requirements.

b. Planning and Budgeting issues:

1) Establishment of the Contract Budget Base - especially in a Fixed Price contract.

2) Delivery dates for hardware, major reviews, etc. which should then appear on the Project Master Schedule.

c. Accounting issues:

1) Indirect cost methodology - budgets and control.

2) Treatment of residual inventory after contract completion.

d. Analysis issues:

1) CWBS and organisational line items to be reported (these should be based upon perceived technical, schedule, and cost risk to the Defence - the greater the risk, the more detailed the level of reporting should be.)

2) Format of contractor performance reports (the 5 Cost Performance Report formats are much preferred).

3) How subcontractor data will be incorporated into the prime contractor's reports to the Defence.

4) Frequency and timing of reports (monthly, on approximately the 25th of the month).

5) Schedule report formats; ie., network, Gantt, etc.

6) Variance analysis thresholds for:

i. Current period;

ii. Cumulative; and

iii. At completion data

7) Cost or Price reporting (cost is <u>required</u> for cost based contracts)

8) Reporting time periods for Formats 3 and 4 of the CPR.

e. Revisions and Access to Data issues:

1) Access to cost information - especially in a Fixed Price contract.

2) Authorised Unpriced Work - what constitutes a formal authorisation from the Project Authority and who is authorised to issue it.

3) The type of review to be conducted - Demonstration or Subsequent Application Review.

C.2. **Timing.** In addition to the above, the review process requires a number of visits and demonstrations to be performed. The timing of these may be highly important to both the Project Authority and the Review Director. The importance of baseline establishment and commencement of reporting should be emphasised.

ANNEX D. EVALUATION/DEMONSTRATION REVIEW CHECKLIST FOR CSCSC

CHECKLIST ITEMS	YES	NO	REMARKS
I. ORGANIZATION			
1. DEFINE ALL THE AUTHORIZED WORK AND RELATED RESOURCES TO MEET THE CONTRACT REQUIREMENTS, USING THE CONTRACT WORK BREAKDOWN STRUCTURE (CWBS) FRAMEWORK.			
a. Is only one CWBS used for the contract attach copy of CWBS?			
b. Is all contract work included in the CWBS?			
c. Are the following elements included in the CWBS (annotate copy of CWBS to show elements below):			
1) Contract products AMD services (if in consonance with US Defence MIL-STD-881 latest edition)?			
2) All CWBS elements specified for external reporting?			
3) CWBS elements to be subcontracted, with identification of subcontractors?			
4) Cost account levels?			
2. IDENTIFY THE INTERNAL ORGANIZATIONAL ELEMENTS AND THE MAJOR SUBCONTRACTORS RESPONSIBLE FOR ACCOMPLISHING THE AUTHORIZED WORK.			
a. Are all authorized tasks assigned to identified organizational elements? (This must occur at the cost account level as a minimum. Prepare exhibit showing relationships.)			
b. Is subcontracted work defined and identified to the appropriate subcontractor within the proper WBS element? (Provide representative example.)			
3. 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. (Reference Format 1.)			
a. Are the contractor's management control systems listed above integrated with each other, the CWBS and the organisational structure at the following levels:			
1) Total contract?			
2) Cost account?			
4. IDENTIFY THE MANAGERIAL POSITIONS RESPONSIBLE FOR CONTROLLING OVERHEAD (INDIRECT COSTS).			
a. Are the following organisational elements and managers clearly identified:			
1) Those responsible for the establishment of budgets and assignment of resources for overhead performance?			
2) Those responsible for overhead performance control of related costs?			

CHECKLIST ITEMS	YES	NO	REMARKS
b. Are the responsibilities and authorities of each of the above organisational elements or managers clearly defined?			
5. 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.			
a. Is each cost account assigned to a single organisational element directly responsible for the work and identifiable to a single element of the CWBS?			
b. Are the data elements for measuring performance (BCWS, BCWP, ACWP, BAC, EAC, and associated variances) available at the levels selected for control and analysis?			
II. PLANNING AND BUDGETING			
1. SCHEDULE THE AUTHORIZED WORK IN A MANNER THAT DESCRIBES THE SEQUENCE OF WORK AND IDENTIFIES THE SIGNIFICANT TASK INTERDEPENDENCIES REQUIRED TO MEET THE DEVELOPMENT, PRODUCTION, AND DELIVERY REQUIREMENTS OF THE CONTRACT.			
a. Does the scheduling system contain (Prepare exhibit showing traceability from contract task level to work package schedules.):			
1) A master program schedule?			
2) Intermediate schedules, as required, which provide a logical sequence from the master schedule to the cost account level?			
3) Detailed schedules which support cost account and work package start and completion dates/events?			
b. Are significant decision points, constraints, and interfaces identified as key milestones?			
c. Does the scheduling system provide for the identification of work progress against technical and other milestones, and also provide for forecasts of completion dates of scheduled work?			
d. Are work packages formally scheduled in terms of physical accomplishment by month, week, or day, as appropriate?			
2. IDENTIFY PHYSICAL PRODUCTS, MILESTONES, TECHNICAL PERFORMANCE GOALS, OR OTHER INDICATORS THAT WILL BE USED TO MEASURE OUTPUT.			
a. Are meaningful indicators identified for use in measuring the status of cost and schedule performance?			
b. Does the contractor's system identify and measure work accomplishment against the schedule plan? (Provide representative examples.)			
c. Are current work performance indicators and goals relatable to original goals as modified by contractual changes, replanning, and reprogramming actions? (Provide exhibit showing incorporation of changes to original indicators and goals.)			

CHECKLIST ITEMS	YES	NO	REMARKS
3. ESTABLISH AND MAINTAIN A TIME-PHASED BUDGET BASELINE AT THE COST ACCOUNT LEVEL AGAINST WHICH CONTRACT PERFORMANCE CAN BE MEASURED. WHERE APPLICABLE, INITIAL BUDGETS ESTABLISHED FOR THIS PURPOSE SHALL BE BASED ON THE NEGOTIATED CONTRACT COST. ANY OTHER AMOUNT USED FOR PERFORMANCE MEASUREMENT PURPOSES MUST BE RECOGNISED FORMALLY BY BOTH THE CONTRACTOR AND THE COMMONWEALTH. (Reference Formats 2 and 8.)			
a. Does the performance measurement baseline consist of the following:			
1) Time-phased cost account budgets?			
2) Higher level CWBS budget elements (where budgets are not yet broken down into cost account budgets)?			
3) Undistributed budget, if any?			
4) Indirect budgets, if not included in the above?			
b. Is the entire contract planned in time-phased cost accounts to the extent practicable?			
c. In the event that future contract effort cannot be defined in sufficient detail to allow the establishment of cost accounts, is the remaining budget assigned to the lowest practicable CWBS level elements for subsequent distribution to cost accounts?			
d. Does the contractor require sufficient detailed planning of cost accounts to constrain the application of budget initially allocated for future effort to current effort? (Explain constraints.)			
e. Are cost accounts opened and closed based on the start and completion of work contained therein?			
4. ESTABLISH BUDGETS FOR ALL AUTHORIZED WORK WITH SEPARATE IDENTIFICATION OF COST ELEMENTS (LABOR, MATERIAL, ETC).			
a. Does the budgeting system contain: (Provide exhibit.)			
1) The total budget for the contract (including estimates for authorised but unpriced work)?			
2) Budgets assigned to major functional organisations? (See Checklist Item II, 9a&b.)			
3) Budgets assigned to cost accounts?			
b. Are the budgets assigned to cost accounts planned and identified in terms of the following cost elements: (Reference Formats 3 and 4.)			
1) Direct labour dollars and/or hours?			
2) Material and/or subcontract dollars?			
3) Other direct dollars?			
c. Does the work authorisation system contain:			
1) Authorisation to proceed with all authorised work?			

CHECKLIST ITEMS	YES	NO	REMARKS
2) Appropriate work authorisation documents which subdivide the contractual effort and responsibilities within functional organisations?			
5. TO THE EXTENT THE AUTHORIZED WORK CAN BE IDENTIFIED IN DISCRETE, SHORT TIME-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 BUDGET AND SCHEDULING PURPOSES: (Reference Format 6.)			
a. Do work packages reflect the actual way in which the work will be done and are they meaningful products or management-oriented subdivisions of a higher level element of work? (Provide representative sample.)			
b. Are detailed work packages planned as far in advance as practicable?			
c. Is work progressively subdivided into detailed work packages as requirements are defined?			
d. Is future work which cannot be planned in detail subdivided to the extent practicable for budgeting and schedule purposes? (Provide sample.)			
e. Are work packages reasonably short in time duration or do they have adequate objective indicators/ milestones to minimise the subjectivity of the in-process work evaluation?			
f. Do work packages consist of discrete tasks which are adequately described? (Provide representative sample.)			
g. Can the contractor substantiate work package and planning package budgets?			
h. Are budgets or value assigned to work packages and planning packages in terms of dollars, hours, or other measurable units?			
i. Are work packages assigned to performing organisations?			
6. PROVIDE THAT THE SUM OF ALL WORK PACKAGE BUDGETS PLUS PLANNING PACKAGE BUDGETS WITHIN A COST ACCOUNT EQUALS THE COST ACCOUNT BUDGET. (Reference Format 2.)			
a. Does the sum of all work package budgets plus planning package budgets within cost accounts equal the budgets assigned to those cost accounts?			
7. IDENTIFY RELATIONSHIPS OF BUDGETS OR STANDARDS IN UNDERLYING WORK AUTHORIZATION SYSTEMS TO BUDGETS FOR WORK PACKAGES.			
a. Where engineering standards or other internal work measurement systems are used, is there a formal relationship between these values and work package budgets? (Provide samples showing relationships.)			
b. Where "learning" is used in developing underlying budgets, is there a direct relationship between anticipated learning and time-phased budgets?			

CHECKLIST ITEMS	YES	NO	REMARKS
8. IDENTIFY AND CONTROL LEVEL OF EFFORT ACTIVITY BY TIME-PHASED BUDGETS ESTABLISHED FOR THIS PURPOSE. ONLY THAT EFFORT WHICH CANNOT BE IDENTIFIED AS MEASURED EFFORT OR AS APPORTIONED EFFORT WILL BE CLASSED AS LOE. (Reference Format 6.)			
a. Are time-phased budgets established for planning and control of level of effort activity by category of resource, for example, type of manpower and/or material? (Explain method of control and analysis)			
b. Is work properly classified as measured effort, LOE, or apportioned effort and appropriately separated?			
9. 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. (Reference Format 7.)			
a. Are overhead budgets (or projections) established on a facility-wide basis at least annually for the life of the contract?			
b. Are overhead budgets established for each organisation which has authority to incur overhead costs?			
c. Are all elements of expense identified to overhead cost budgets or projections?			
d. Where applicable, are overhead budgets and costs managed according to the contractor's agreement with the Defence for the management of overhead costs?			
e. Is the anticipated (firm and potential) business base projected in a rational, consistent manner? (Explain.)			
f. Are overhead cost budgets established on a basis consistent with the anticipated direct business base?			
g. Are the requirements for all items of overhead established by rational, traceable processes?			
h. Are the overhead pools formally and adequately identified? (Provide a list of the pools.)			
i. Are the organizations and items of cost assigned to each pool identified?			
j. Are projected overhead costs in each pool and the associated direct costs used as the basis for establishing interim rates for allocating overhead to contracts?			
k. Are projected overhead rates applied to the contract beyond the current year based on:			
1) Contractor financial periods, eg., annual?			
2) The projected business base for each period?			
3) Contemplated overhead expenditure for each period based on the best information currently available?			

CHECKLIST ITEMS	YES	NO	REMARKS
l. Are overhead projections adjusted in a timely manner to reflect:			
1) Changes in the current direct and projected base?			
2) Changes in the nature of the overhead requirements?			
3) Changes in the overhead pool and/or organisation structure?			
m. Are the WBS and organisational levels for application of the projected overhead costs identified?			
10. IDENTIFY MANAGEMENT RESERVES AND UNDISTRIBUTED BUDGET.			
a. Is all management reserve budget identified and excluded from the performance measurement baseline?			
b. Are records maintained to show how management reserve budget is used? (Provide exhibit.)			
c. Is undistributed budget limited to contract effort which cannot yet be planned to CWBS elements at or below the level specified for reporting to the Defence?			
d. Are records maintained to show how undistributed budget is controlled? (Provide exhibit.)			
11. PROVIDE THAT THE CONTRACT TARGET COST PLUS THE ESTIMATED COST OF AUTHORISED UNPRICED WORK IS RECONCILED WITH THE SUM OF ALL INTERNAL CONTRACT BUDGETS AND MANAGEMENT RESERVES. (Reference Formats 3, 4, and 5.)			
a. Does the contractor's systems description or procedures require that the performance measurement baseline plus management reserve budget equal the contract budget base?			
b. Do the sum of the cost account budgets for higher level CWBS elements, undistributed budget, and management reserves reconcile with the contract target cost plus the estimated cost for authorized unpriced work?			
III. ACCOUNTING			
1. 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.			
a. Does the accounting system provide a basis for auditing records of direct costs chargeable to the contract?			
b. Are elements of direct cost (labour, material, and so forth) accumulated within cost accounts in a manner consistent with their budgets using recognized, acceptable costing techniques and controlled by the general books of account?			
2. SUMMARIZE DIRECT COSTS FROM COST ACCOUNTS INTO THE WBS WITHOUT ALLOCATION OF A SINGLE COST ACCOUNT TO TWO OR MORE WBS ELEMENTS. (Reference Format 3.)			

CHECKLIST ITEMS	YES	NO	REMARKS
a. Is it possible to summarise direct costs from the cost account level through the CWBS to the total contract level without allocation of a lower level CWBS element to two or more higher level CWBS elements? (This does not preclude the allocation of costs from a cost account containing common items to appropriate using cost accounts.)			
3. 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. (Reference Format 4.)			
a. Is it possible to summarise direct costs from the cost account level to the highest functional organisational level without allocation of a lower level organisation's cost to two or more higher level organisations? (This does not preclude the allocation of costs from a cost account containing minor non-organisational work to the appropriate functional organisations.)			
4. RECORD ALL INDIRECT COSTS WHICH WILL BE ALLOCATED TO THE CONTRACT.			
a. Does the cost accumulation system provide for summarisation of indirect costs from the point of allocation to the contract total?			
b. Are indirect costs accumulated for comparison with the corresponding budgets?			
c. Do the lines of authority for incurring indirect costs correspond to the lines of responsibility for management control of the same components of costs? (Explain controls for fixed and variable indirect costs.)			
d. Are indirect costs charged to the appropriate indirect pools and incurring organisation?			
e. Are the bases and rates for allocating costs from each indirect pool consistently applied?			
f. Are the bases and rates for allocating costs from each indirect pool to commercial work consistent with those used to allocate such costs to Commonwealth contracts?			
g. Are the rates for allocating costs from each indirect cost pool to contracts updated as necessary to ensure a realistic monthly allocation of indirect costs without significant year-end adjustments?			
h. Are the procedures for identifying indirect costs to incurring organisations, indirect cost pools, and allocating the costs from the pools to the contracts formally documented and followed?			
5. IDENTIFY THE BASES FOR ALLOCATING THE COST OF APPORTIONED EFFORT.			
a. Is effort which is planned and controlled in direct relationship to cost accounts or work packages identified as apportioned effort?			
b. Are methods for applying apportioned effort costs to cost accounts applied consistently, and documented in an established procedure and followed?			

CHECKLIST ITEMS	YES	NO	REMARKS
6. IDENTIFY UNIT COSTS, EQUIVALENT UNIT COSTS, OR LOT COSTS WHEN APPLICABLE.			
a. Does the contractor's system provide unit costs, equivalent unit or lot costs in terms of labor, material, other direct, and indirect costs?			
b. Does the contractor have procedures which permit identification of recurring or nonrecurring costs, as necessary?			
7. THE CONTRACTOR'S MATERIAL ACCOUNTING SYSTEM SHALL PROVIDE FOR THE FOLLOWING: ACCURATE COST ACCUMULATION AND ASSIGNMENT OF COSTS TO COST ACCOUNTS IN A MANNER CONSISTENT WITH THE BUDGETS, USING RECOGNISED AND ACCEPTABLE COSTING TECHNIQUES; DETERMINATION OF PRICE VARIANCES BY COMPARING PLANNED VERSUS ACTUAL COMMITMENTS; COST PERFORMANCE MEASUREMENT AT THE 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.			
a. Does the contractor's system provide for accurate cost accumulation and assignment to cost accounts in a manner consistent with the budgets using recognised, acceptable costing techniques?			
b. Are material costs reported within the same period as that in which BCWP is earned for that material?			
c. Does the contractor's system provide for determination of price variance by comparing planned versus actual commitments?			
d. Is 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?			
e. Does the contractor's system provide for the determination of cost variances attributable to the excess usage of material?			
f. Does the contractor's system provide unit or lot costs when applicable?			
g. Are records maintained to show full accountability for all material purchased for the contract (including residual inventory)?			
IV. ANALYSIS			
1. IDENTIFY AT THE COST ACCOUNT LEVEL ON A MONTHLY BASIS USING DATA FROM OR RECONCILABLE WITH, THE ACCOUNTING SYSTEM: BUDGETED COST FOR WORK SCHEDULED (BCWS) AND BUDGETED COST FOR WORK PERFORMED (BCWP); BUDGETED COST FOR WORK PERFORMED AND APPLIED (ACTUAL WHERE APPROPRIATE) DIRECT COSTS FOR THE SAME WORK; VARIANCES RESULTING FROM THE ABOVE COMPARISONS BETWEEN BCWS AND BCWP AND BETWEEN BCWP AND APPLIED OR ACTUAL DIRECT COSTS CLASSIFIED IN TERMS OF LABOUR, MATERIAL, OR OTHER APPROPRIATE ELEMENTS TOGETHER WITH THE REASONS FOR SIGNIFICANT VARIANCES.			
a. Does the contractor's system include procedures for measuring performance of the organisation responsible for the cost account and are they followed? (Provide typical example.)			

CHECKLIST ITEMS	YES	NO	REMARKS
b. Does the contractor's system include procedures for measuring the performance of critical subcontractors?			
c. Is cost and schedule performance measurement done in a consistent, systematic manner?			
d. Are the actual costs used for variance analysis reconcilable with data from the accounting system?			
e. Is BCWP calculated in a manner consistent with the way work is planned? (For example, if BCWS is planned on a measured basis, is BCWP calculated on a measured basis using the same rates and values?)			
f. Does the contractor have variance analysis procedures and a demonstrated capability for identifying (at the cost account and other appropriate levels) cost and schedule variances resulting from the system, (provide examples) which:			
1) Identify and isolate causes of favourable and unfavourable cost and schedule variances?			
2) Evaluate the impact of schedule changes, work around, etc.?			
3) Evaluate the performance of operating organisations?			
4) Identify potential or actual overruns and underruns?			
2. IDENTIFY ON A MONTHLY BASIS, IN THE DETAIL NEEDED BY MANAGEMENT FOR EFFECTIVE CONTROL, BUDGETED INDIRECT COSTS, ACTUAL INDIRECT COSTS, AND THE COST VARIANCES ALONG WITH THE REASONS FOR SIGNIFICANT VARIANCES. (Reference Format 7.)			
a. Are variances between budgeted and actual indirect costs identified and analysed at the level of assigned responsibility for their control (indirect pool, department, etc.)?			
b. Does the contractor's cost control system provide for capability to identify the existence and causes of cost variances resulting from:			
1) Incurrence of actual indirect costs in excess of budgets, by element of expense?			
2) Changes in the direct base to which overhead costs are allocated?			
c. Are management actions taken to reduce indirect costs where there are significant adverse variances?			
3. SUMMARIZE THE DATA ELEMENTS AND ASSOCIATED VARIANCES LISTED IN 1 AND 2, ABOVE, THROUGH THE CONTRACTOR ORGANIZATION AND WBS TO THE REPORTING LEVEL SPECIFIED IN THE CONTRACT. (Reference Formats 2, 3, 4, 5.)			
a. Are data (BCWS, BCWP, and ACWP) progressively summarised from the detail level to the contract level through the CWBS? (Provide exhibit.)			

CHECKLIST ITEMS	YES	NO	REMARKS
b. Are data elements summarised through the functional organisational structure for progressively higher levels of management? (Provide exhibit.)			
c. Are the data reconcilable between internal summary reports and reports forwarded to the Defence?			
d. Are procedures for variance analysis documented and consistently applied at the cost account level and selected WBS and organisational levels at lease monthly as a routine task? (Provide examples.)			
4. IDENTIFY SIGNIFICANT DIFFERENCES ON A MONTHLY BASIS BETWEEN PLANNED AND ACTUAL SCHEDULE ACCOMPLISHMENT AND THE REASONS.			
a. Does the scheduling system identify in a timely manner the status of work? (Provide representative examples.)			
b. Does the contractor use objective results, design reviews, and tests to track schedule performance? (Provide examples.)			
5. IDENTIFY MANAGERIAL ACTIONS TAKEN AS A RESULT OF CRITERIA ITEMS 1 THROUGH 4, ABOVE.			
a. Are accurate cost and schedule performance measurement and analysis provided to the contractor's managers in a timely and useable manner? (Provide examples)			
b. Is the information in "a" above, being used by the contractor's managers to identify reasons for significant variances and to initiate appropriate corrective actions? (Provide examples)			
c. Are there procedures for monitoring action items and corrective actions to the point of resolution and are these procedures being followed?			
6. 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, WHERE APPLICABLE, THE LATEST STATEMENT OF FUNDS REQUIREMENTS REPORTED TO THE COMMONWEALTH. (Reference 2, 3, 4, 5, 10 and 11.)			
a. Are estimates at completion based on:			
1) Performance to date?			
2) Actual costs to date?			
3) Knowledgeable projections of future performance?			
4) Estimates of the cost for contract work remaining to be accomplished considering economic escalation?			
b. Are the overhead rates used to develop the contract cost estimate to complete based on:			
1) Historic experience?			
2) Contemplated management improvements?			
3) Projected economic escalation?			
4) The anticipated business volume?			

CHECKLIST ITEMS	YES	NO	REMARKS
c. Are estimates at completion generated with sufficient frequency to provide identification of future cost problems in time for possible corrective or preventive actions by both the contractor and the Defence Project Authority?			
d. Are estimates developed by program personnel coordinated with those responsible for overall plant management to determine whether required resources will be available in accordance with revised planning?			
e. Are estimates at completion generated by appropriate personnel for the following levels:			
1) Cost accounts?			
2) Major functional areas of contract effort?			
3) Major subcontracts?			
4) CWBS elements contractually specified for reporting of status to the Defence? (Lowest level only.)			
5) Total contract (all authorised work)?			
f. Are the latest revised estimates of costs at completion compared with the established budgets at appropriate levels and causes of variances identified?			
g. Are estimates at completion generated in a rational, consistent manner? Are procedures established for appropriate aspects of generating estimates of costs at completion?			
h. Are estimates of costs at completion utilised in determining contract funding requirements and reporting them to the Defence?			
i. Are the contractor's estimates of costs at completion reconcilable with cost data reported to the Defence?			
V. REVISIONS & ACCESS TO DATA			
1. INCORPORATE EXPEDITIOUSLY CONTRACTUAL CHANGES, 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.			
a. Are authorised changes being incorporated in a timely manner?			
b. Are all affected work authorisations, budgeting, and scheduling documents amended to properly reflect the effects of authorised changes? (Provide examples.)			
c. Are internal budgets for authorised, but not priced changes based on the contractor's resource plan for accomplishing the work?			
d. If current budgets for authorised changes do not sum to the negotiated cost for the changes, does the contractor compensate for the differences by revising the undistributed budget, management reserve budget, budgets established for work not yet started, or by a combination of these?			

CHECKLIST ITEMS	YES	NO	REMARKS
2. 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 THE FOLLOWING: CHANGES TO THE AUTHORIZED WORK, AND INTERNAL REPLANNING IN THE DETAIL NEEDED BY MANAGEMENT FOR EFFECTIVE CONTROL. (Reference Formats 8 and 9.)			
a. Are current budgets resulting from changes to the authorised work and/or internal replanning, reconcilable to original budgets for specified reporting items?			
3. PROHIBIT RETROACTIVE CHANGES TO RECORDS PERTAINING TO WORK PERFORMED THAT WOULD CHANGE PREVIOUSLY REPORTED AMOUNTS FOR DIRECT COSTS, INDIRECT COSTS, OR BUDGETS, EXCEPT FOR CORRECTION OF ERRORS AND ROUTINE ACCOUNTING ADJUSTMENTS.			
a. Are retroactive changes to direct costs and indirect costs prohibited, except for the correction of errors and routine accounting adjustments?			
b. Are direct or indirect cost adjustments being accomplished in accordance with accounting procedures acceptable to the Commonwealth?			
c. Are retroactive changes to BCWS and BCWP prohibited except for correction of errors or for normal accounting adjustments?			
4. PREVENT REVISIONS TO THE CONTRACT BUDGET BASE EXCEPT FOR COMMONWEALTH-DIRECTED CHANGES TO CONTRACTUAL EFFORT.			
a. Are procedures established to prevent changes to the contract budget base (see definition) other than those authorized by the Project Authority?			
b. Is authorization of budgets in excess of the contract budget base controlled formally and done with the full knowledge and recognition of the Project Authority? Are the procedures adequate?			
5. DOCUMENT, INTERNALLY, THE CHANGES TO THE PERFORMANCE MEASUREMENT BASELINE AND NOTIFY THE COMMONWEALTH EXPEDITIOUSLY THROUGH PRESCRIBED PROCEDURES.			
a. Are changes to the performance measurement baseline made as a result of contractual redirection, formal reprogramming, internal replanning, application of undistributed budget, or the use of management reserve properly documented and reflected in the Cost Performance Report?			
b. Do procedures specify under what circumstances replanning of open work packages may occur, and the methods to be followed? Are those procedures adhered to?			
c. Are retroactive changes to budgets for completed work specifically prohibited in an established procedure and is this procedure adhered to?			
d. Are procedures in existence that control replanning of unopened work packages and are these procedures adhered to?			
6. PROVIDE THE COMMONWEALTH'S REPRESENTATIVES WITH ACCESS TO THE INFORMATION AND SUPPORTING DOCUMENTS NECESSARY TO DEMONSTRATE COMPLIANCE WITH THE CSCSC.			

CHECKLIST ITEMS	YES	NO	REMARKS
a. Does the contractor provide access to all pertinent records to the CSCSC Review Team and surveillance personnel?			

ANNEX E. SUB SYSTEM INTEGRATION MAJOR ORGANISATION (FOR EXAMPLE: ENGINEERING) AND ASSOCIATED DOCUMENTATION SAMPLE FORMAT 1

CWBS LEVEL	ORGANISATIONAL LEVEL	SCHEDULING	BUDGETING	WORK AUTHORISATION	PERFORMANCE MEASUREMENT
1 CONTRACT	2	3	4	5	6
	NOTES:				
	1. Column 1 - Identify a representative element (name and 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 organisation 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 (Col 1)and internal organisation level (Col 2).				
	4. Prepare format for each major organisation or subdivision that differs.				
	5. There need not be a different type of documentfor each CWBS and organisation level.				
COST ACCOUNT	6. Reference criteria checklist Item 1-3.				
WORK PACKAGE					

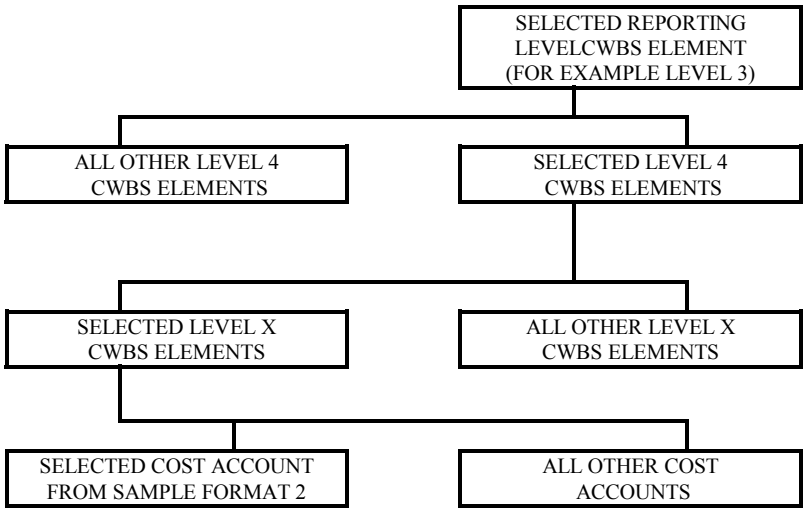
RECONCILIATION OF INTERNAL DATA
COST ACCOUNT DATA
SAMPLE FORMAT 2

COST ACCOUNT ORGANISATION		AS APPLICABLE (CUMULATIVE TO DATE DATA)																							
WORK PACKAGE	TOTAL	LABOUR-HOURS				LABOUR $				MATERIAL $				ODC $				OVERHEAD $				TOTAL $			
PLANNING PACKAGE	BUDGET	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 work package or cost account level. Include these $ at the level where the contractor allocates them.
2. Summarisation to contract level continues on Sample Formats 3,4 and 5.
3. ACWP and EAC need not be at the work package level.
4. A separate format is to be prepared for each trace element selected.
5. The contractor's internal reports may be used wherever possible provided they contain all the required data.
6. Reference criteria checklist items II-3, II-4, II-6, IV-3, and IV-6.

RECONCILIATION OF INTERNAL DATA
CWBS DATA
SAMPLE FORMAT 3



678

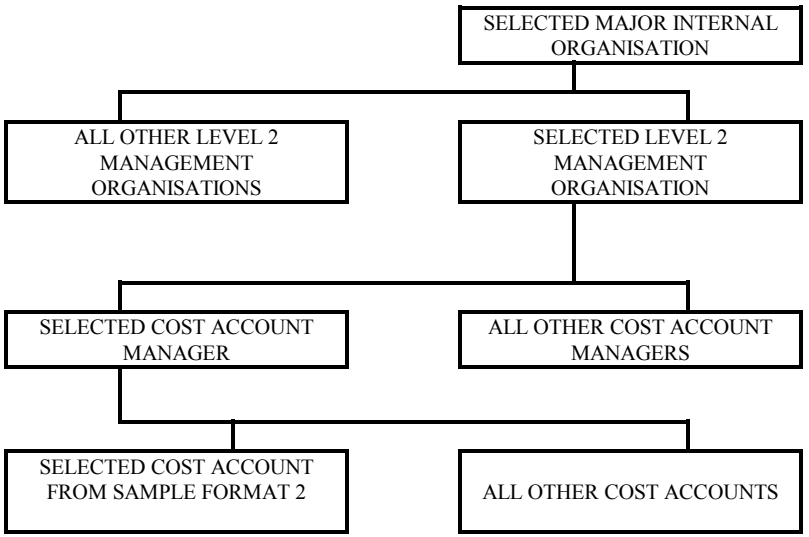
✳ COST		TO DATE		BAC	EAC
✳ ELEMENT	BCWS	BCWP	ACWP		
✳ LABOUR-HOURS					
✳ LABOUR $					
✳ MATERIAL $					
✳ ODC $					
✳ OVERHEAD $					
✳ TOTAL $					

✳ - AS APPLICABLE

NOTES:

1. Reconcile total budget, BCWS, BCWP, and ACWP for data sample cost accounts to successively higher CWBS levels.
2. In summarising 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 CWBS.
3. Selected cost account should be the same as selected for the organisational summarisation (Format 4).
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 summarise the Estimate of Cost At Completion (EAC) by element of cost, (eg labour hours, labour costs, material costs, 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 Checklist Items II-4, II-11, III-2, IV-3 and IV-6.

RECONCILIATION OF INTERNAL DATA
ORGANISATIONAL DATA
SAMPLE FORMAT 4



678

✶ COST		TO DATE		BAC	EAC
✶ ELEMENT	BCWS	BCWP	ACWP		
✶ LABOUR-HOURS					
✶ LABOUR $					
✶ 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 summarising to higher levels, various cost levels 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 CWBS.
3. Selected cost account should be the same as selected for the organisational summarisation (Format 4).
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 summarise the Estimate of Cost At Completion (EAC) by element of cost, (eg labour hours, labour costs, material costs, 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 Checklist Items II-4, II-11, III-2, IV-3 and IV-6.

RECONCILIATION OF INTERNAL DATA
SUMMARY LEVEL DATA
SAMPLE FORMAT 5

MAJOR INTERNAL ORGANISATIONS	DATA ELEMENT	REPORTING LEVEL CWBS ELEMENT										TOTAL				
		CWBS ELEMENT					CWBS ELEMENT									
		CUMULATIVE			BAC	EAC	CUMULATIVE			BAC	EAC	CUMULATIVE			BAC	EAC
		BCWS	BCWP	ACWP			BCWS	BCWP	ACWP			BCWS	BCWP	ACWP		
	LABOUR															
ENG	MATERIAL															
	ODC															
	OVERHEAD															
	TOTAL															
	LABOUR															
MFG	MATERIAL															
	ODC															
	OVERHEAD															
	TOTAL															
	LABOUR															
OTHER	MATERIAL															
	ODC															
	OVERHEAD															
	TOTAL															
	LABOUR															
SUB TOTAL	MATERIAL															
	ODC															
	OVERHEAD															
	TOTAL															
OVERHEAD NOT INCLUDED IN ABOVE																
GENERAL AND ADMINISTRATIVE																
UNDISTRIBUTED BUDGET																
SUB TOTAL																
MANAGEMENT RESERVE																
TOTAL																

NOTES:

1. Accomplish at Summary WBS levels and Undistributed Budget.
2. Management Reserve - Identify and add to internal budgets to reconcile to negotiated contract costs.
3. Discrepancies - document, identify levels where occurred, and dollar amount, include cause if known.
4. One of the reporting level CWBS elements and Major Internal Organisations will correlate to Formats 3 and 4 respectively.
5. The contractor's internal reports may be used wherever possible provided they contain all the required data.
6. If the contractor's system does not routinely summarise the estimate of cost at completion (EAC) by element of cost (ie labour cost, material cost, other direct cost, overhead cost) to higher levels of reporting, only the total line of each EAC column on the format is required to be completed.
7. Accomplish at Level 2 or lower level.
8. Reference Criteria Checklist Items II-1, IV-3 and IV-6.

EVALUATION OF COST ACCOUNTS/WORK PACKAGES
SAMPLE FORMAT 6

COST ACCOUNTS										
		LONGEST	SHORTEST	MEAN	MEDIAN	TOTAL	LARGEST	SMALLLEST	MEAN	MEDIAN
TOTAL	NUMBER	CA	CA	DURATION	DURATION	VALUE	CA	CA	VALUE	VALUE
MEASURED EFFORT										
APPORTIONED EFFORT										
LEVEL OF EFFORT										
TOTAL										
WORK PACKAGES TYPE OF MEASUREMENT	NUMBER	LONGEST CA	SHORTEST CA	MEAN DURATION	MEDIAN DURATION	TOTAL VALUE	LARGEST CA	SMALLEST CA	MEAN VALUE	MEDIAN VALUE
MILESTONE										
OBJECTIVE INDICATORS										
EARNED UNITS										
50 - 50										
OTHER										
PLANNING PACKAGES										
TOTAL										

NOTES:

1. Use data from a total contract or a representative sample (basis of sample should be explained).

2. Under type of measurement, list all methods used by contractor to measure work package performance.

3. Reference Criteria Checklist Items II-5 and II-8.

CONTRACT INDIRECT COST EVALUATION
SAMPLE FORMAT 7

TYPE OF OVERHEAD POOL	DATA ELEMENT	MAJOR ORGANISATIONS					
		ENGINEERING	FACTORY	TOOLING	LOGISTICS	ETC	SUB-TOTAL
MANUFACTURING	BUDGET(TOTAL) BUDGET TO DATE ACTUALS TO DATE DIFFERENCE						
ENGINEERING	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 organisation allocation base. 2. Data to accomplish this format should be derived from the lowest level at which contract indirect costs are planned and allocated to organisations. 3. Analyse differences on supporting worksheets. 4. Reference Criteria Checklist items II-9 and IV-2.				
MATERIAL	BUDGET (TOTAL) BUDGET TO DATE ACTUALS TO DATE DIFFERENCE						
OTHER	BUDGET (TOTAL) BUDGET TO DATE ACTUALS TO DATE						
TOTAL	BUDGET (TOTAL) BUDGET TO DATE ACTUALS TO DATE DIFFERENCE						

PERFORMANCE MEASUREMENT BASELINE CHANGE TRACEABILITY
COST ACCOUNT LEVEL
SAMPLE FORMAT 8

COST ACCOUNT NUMBER	ORIGINAL BUDGET	SOURCE AND AMOUNT OF CHANGES (AS APPLICABLE)				SUB TOTAL (2,3,4,5 & 6)	CURRENT BUDGET	DIFFERENCE (8 - 7)	EXPLANATION OF DIFFERENCE
		CONTRACT CHANGE	HIGHER LEVEL CWBS	UNDIS BUDGET	MGMT RESERVE				
1	2	3	4	5	6	7	8	9	10
		NOTES: 1. For the selected CWBS element format reconciles current cost account budget to original budgets for baseline control. (Refer to contractor internal control logs). 2. Analyse differences on supporting worksheets. 3. Reference Criteria Checklist Items II-3 and V-2.							
CWBS ELEMENT SUB TOTAL									

RECONCILIATION OF INTERNAL DATA (BUDGET REVISION)
AT TOTAL CONTRACT LEVEL
SAMPLE FORMAT 9

	ORIGINAL BUDGET	SOURCE AND AMOUNT OF CHANGES (AS APPLICABLE)				SUB TOTAL (2,3,4,5 & 6)	CURRENT BUDGET	DIFFERENCE (8 - 7)	EXPLANATION OF DIFFERENCE
		CONTRACT CHANGE	HIGHER LEVEL CWBS	UNDIS BUDGET	MGMT RESERVE				
1 TOTAL OF ALL COST ACCOUNTS	2	3	4	5	6	7	8	9	10
TOTAL OF HIGHER LEVEL CWBS ELEMENTS NOT BROKEN DOWN TO COST ACCOUNTS		**NOTES:** 1. Reconcile current contract budgets to original budgets and compare values to contract target costs. (Refer to contractor internal control logs). 2. Analyse differences on supporting worksheets. 3. Reference Criteria Checklist Item V-2.							
OVERHEAD NOT INCLUDED IN THE ABOVE									
GENERAL AND ADMINISTRATIVE									
UNDISTRIBUTED BUDGET									
PERFORMANCE MEASUREMENT BASELINE									
MANAGEMENT RESERVE									
TOTAL ALLOCATED									

RECONCILIATION OF EXTERNAL REPORTS TO INTERNAL DATA (CWBS)
SAMPLE FORMAT 10

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)		**NOTES:**						
DIFFERENCE		1. Reports to be completed should cover identical periods.						
TEST COST PERFORMANCE REPORT		2. Items shown in the first column are illustrative. Use applicable WBS reporting level items.						
CONTRACTOR INTERNAL REPORT (SPECIFY)								
DIFFERENCE		3. Analyse differences on a separate worksheet. Trace each difference to its origin and explain.						
SYSTEM ENGINEERING COST PERFORMANCE REPORT								
OTHER		4. Reference Criteria Checklist Items IV-3 and IV-6.						
TOTAL CWBS ELEMENTS COST PERFORMANCE REPORT								
CONTRACTOR INTERNAL REPORT								
DIFFERENCE								

RECONCILIATION OF EXTERNAL REPORTS TO INTERNAL DATA
SAMPLE FORMAT 11

MAJOR INTERNAL ORGANISATION	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)		**NOTES:**						
DIFFERENCE		1. Reports to be completed should cover identical periods.						
MANUFACTURING COST PERFORMANCE REPORT		2. Items shown in the first column are illustrative. Use applicable contractor organisational structure.						
CONTRACTOR INTERNAL REPORT (SPECIFY)								
DIFFERENCE		3. Analyse differences on a separate worksheet. Trace each difference to its origin and explain.						
OTHER COST PERFORMANCE REPORT								
CONTRACTOR INTERNAL REPORT (SPECIFY)		4. Reference Criteria Checklist Items IV-3 and IV-6.						
TOTAL								
COST PERFORMANCE REPORT								
CONTRACTOR INTERNAL REPORT								
DIFFERENCE								

ANNEX F. CSCSC REVIEW REPORTS

F.1. Requirement. The Review Director is required to provide a formal report of any Demonstration Review or Subsequent Application Review. The report is submitted as the official record at the end of the Review process.

F.2. **Purpose.** The primary purpose of the report is to document the examination of the contractors' systems in sufficient detail to justify acceptance by Defence. A secondary purpose is to provide a lasting record of the system as accepted which forms the basis for subsequent reviews and surveillance. In this regard, the report should be consistent with the contractor's System Description at the conclusion of the review process.

F.3. **Standard.** The standard of each report is important. Reports (particularly the findings) must provide a basis for effective review by others with limited or no knowledge of the specific management system. The quality of the report may also be taken as a direct reflection of the nature and quality of the review.

F.4. **Demonstration Review Report Format.** The format for reports of Demonstration Reviews should follow established practice in Australia which is consistent with the US Department of Defense. Detailed guidance for the preparation of the report will be published in documentation issued for the guidance of Team Members. Significant aspects of the report are:

a. It must make a clear recommendation concerning acceptance.

b. Any caveats or proposed restrictions or limitations on acceptance should be shown clearly.

c. Each team members contribution and commitment to the findings should be documented (normally by inclusion of a signature page).

d. Compliance, or otherwise, with each of the Criteria should be stated clearly.

e. Wide use should be made of exhibits to demonstrate compliance.

f. Sensitive information may be sanitised,.but the method employed should not preclude showing how the systems meet the Criteria.

F.5. **SAR Report Format**. The format for reports of SARs should follow established practice in the US Department of Defense. General guidance for the preparation of the report will be published in documentation issued for the guidance of Team Members. The format may be varied at the discretion of the Review Director as indicated by the circumstances of the review.

F.6. **Timing**. The report may be prepared in draft as the review progresses. It is to be submitted as soon as possible after, but not before, closure of the Review by the Review Director.

F.7. **Distribution**. Reports should contain appropriate cautions concerning commercially sensitive information and distribution should be restricted to authorities having a need to hold the document.

ANNEX G. SAMPLE COST PERFORMANCE REPORT - WBS - FORMAT 1

COST PERFORMANCE REPORT - WORK BREAKDOWN STRUCTURE (FORMAT 1)										Page of		
CONTRACTOR: LOCATION:				CONTRACT TYPE/NO.	PROJECT NAME/NUMBER		REPORT PERIOD	SIGNATURE TITLE DATE				
QUANTITY	NEGOTIATED COST	ESTIMATED COST OF AUTHORISED WORK	TARGET PROFIT/FEE	TARGET PRICE	ESTIMATED PRICE		SHARE RATIO	CONTRACT CEILING		ESTIMATED CEILING		
ITEM	CURRENT PERIOD					CUMULATIVE TO DATE					AT COMPLETION		
	BUDGETED COST		ACTUAL	VARIANCE		BUDGETED COST		ACTUAL	VARIANCE				
	WORK SCHEDULED	WORK PERFORMED	COST WORK PERFORMED	SCHEDULE	COST	WORK SCHEDULED	WORK PERFORMED	COST WORK PERFORMED	SCHEDULE	COST	BUDGETED	LATEST REVISED ESTIMATE	VARIANCE
WORK BREAKDOWN STRUCTURE													
GENERAL AND ADMINISTRATIVE													
UNDISTRIBUTED BUDGET													
SUB TOTAL													
MANAGEMENT RESERVE													
TOTAL													

SAMPLE COST PERFORMANCE REPORT - OBS - FORMAT 2

COST PERFORMANCE REPORT - FUNCTIONAL CATEGORIES (FORMAT 2)													Page of
CONTRACTOR:			CONTRACT TYPE/NO.		PROJECT NAME/NUMBER				REPORT PERIOD				
LOCATION:													
ORGANISATIONAL OR FUNCTIONAL CATEGORY	CURRENT PERIOD					CUMULATIVE TO DATE					AT COMPLETION		
	BUDGETED COST		ACTUAL	VARIANCE		BUDGETED COST		ACTUAL	VARIANCE				
	WORK SCHEDULED	WORK PERFORMED	COST WORK PERFORMED	SCHEDULE	COST	WORK SCHEDULED	WORK PERFORMED	COST WORK PERFORMED	SCHEDULE	COST	BUDGETED	LATEST REVISED ESTIMATE	VARIANCE
GENERAL AND ADMINISTRATIVE													
UNDISTRIBUTED BUDGET													
TOTAL													

SAMPLE COST PERFORMANCE REPORT - BASELINE - FORMAT 3

COST PERFORMANCE REPORT - BASELINE (FORMAT 3)													Page of	
CONTRACTOR: LOCATION:		CONTRACT TYPE/NUMBER		PROGRAM NAME/NUMBER				REPORT PERIOD					FORM APPROVED OMB NUMBER	
1 ORIGINAL CONTRACT TARGET COST	2 NEGOTIATED CONTRACT CHANGES	3 CURRENT TARGET COST 1+2		4 ESTIMATED COST OF AUTHORISED, UNPRICED WORK		5 CONTRACT BUDGET BASE 3+4		6 TOTAL ALLOCATED BUDGET					7 DIFFERENCE 5+6	
8 CONTRACT START DATE		9 CONTRACT DEFINITION		10 LAST ITEM DELIVERY DATE				11 CONTRACT COMPLETION DATE				12 COMPLETION DATE		
ITEM	BCWS CUM TO DATE	BCWS FOR CURRENT REPORT DATE	BUDGETED COST FOR WORK SCHEDULED (NON CUMULATIVE) SIX MONTH FORECAST JUL	AUG	SEP	OCT	NOV	DEC	JAN - MAR					UNDIST BUDGET	TOTAL BUDGET
- 1 -	- 2 -	- 3 -	- 4 -	- 5 -	- 6 -	- 7 -	- 8 -	- 9 -	- 10 -	- 11 -	- 12 -	- 13 -	- 14 -	- 15 -	- 16 -
PM BASELINE CHANGES AUTHORISED DURING REPORT PERIOD ALLOCATION OF MR															
PM BASELINE (END OF PERIOD)															
MANAGEMENT RESERVE															
TOTAL															

SAMPLE COST PERFORMANCE REPORT - MANPOWER LOADING - FORMAT 4

COST PERFORMANCE REPORT - MANPOWER LOADING (FORMAT 4)															Page of
CONTRACTOR: LOCATION:			CONTRACT TYPE/NUMBER				PROGRAM NAME/NUMBER			REPORT PERIOD					
ORGANISATIONAL	CURRENT MONTH		CUM	FORECAST (NON CUMULATIVE)											ESTIMATE
OR FUNCTIONAL			TO	SIX MONTH FORECAST BY MONTHS											AT
CATEGORY	PLANNED	ACTUAL	DATE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR			COMPLETION
TOTAL															

SAMPLE COST PERFORMANCE REPORT - PROBLEM ANALYSIS (FORMAT 5)

COST PERFORMANCE REPORT - PROBLEM ANALYSIS (FORMAT 5)				Page of
CONTRACTOR: LOCATION:	CONTRACT TYPE/NUMBER	PROGRAM NAME/NUMBER	REPORT PERIOD	APPROVED

ANNEX H. LIST OF ABBREVIATIONS

The following acronyms or abbreviations appear within the Australian Cost Schedule Implementation Guide:

ACSIG	Australian Cost Schedule Implementation Guide
ACWP	Actual Cost of Work Performed
AUW	Authorised Unpriced Work
BAC	Budget At Completion
BAC new	Budget At Completion - New
BAC old	Budget At Completion - Old
BCWP	Budgeted Cost of Work Performed
BCWP cum	Budgeted Cost of Work Performed - Cumulative
BCWR	Budgeted Cost of Work Remaining
BCWS	Budgeted Cost of Work Scheduled
BCWS cum	Budgeted Cost of Work Scheduled -Cumulative
CSSR	Cost Schedule Status Report
CAM	Cost Account Manager
CBB	Contract Budget Base
CEP	Capital Equipment Program
CPR	Cost Performance Report
CSCSC	Cost Schedule Control Systems Criteria
CV	Cost Variance
CWBS	Contract Work Breakdown Structure
DEFPUR	Defence Purchasing Manual
DEPSEC A&L	Deputy Secretary, Acquisition and Logistics
DoD	US Department of Defense
DPMS	Directorate of Project Management Systems
DR	Discrepancy Report
EAC	Estimate At Completion
FASCEP	First Assistant Secretary, Capital Equipment Program
G&A	General and Administrative
IV	Implementation Visit
LOE	Level Of Effort
LRE	Latest Revised Estimate
MOU	Memorandum of Understanding
NCC	Negotiated Contract Cost
ODC	Other Direct Costs
PDR	Preliminary Design Review
PMB	Performance Measurement Baseline
RA	Readiness Assessment
RFT	Request For Tender
SAR	Subsequent Application Review
SV	Schedule Variance
UB	Undistributed Budget
WBS	Work Breakdown Structure
WP	Work Package

INDEX