

SUPERCONDUCTING  
SUPER  
COLLIDER

DESIGN SPECIFICATION

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- PREPARED BY \_\_\_\_\_  
V. N. Karpenko - SSC Division Head, Magnet Division
- APPROVED BY \_\_\_\_\_  
M. Tigner - SSC Central Design Group Director

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## 1. SSC Configuration Management Plan Background

### 1.1 Introduction

This Configuration Management Plan describes the Superconducting Super Collider (SSC) Central Design Group (CDG) plan for Implementation of Configuration Management on the SSC Project.

Configuration Management provides the administrative framework for the orderly management of technical information and the processing of changes. CDG, as system manager for the SSC, will develop C.M. as a step by step process that will be effective across all systems, interfaces within the project and throughout the evolutionary phases of the project.

- 1.2 SSC Project Background: The definition and applicability of configuration management for SSC takes into consideration the scope of effort in terms of complexity, the degree to which R&D activities have progressed, characteristics of project, organization, features of the implementing plans, and existing configuration management procedures of participating National Laboratories.

### 1.3 Organization

The SSC Project/Program organization is shown in Figure 1-3, with the Department of Energy SSC Project organizational structure shown in Figures 1-4 and 1-5.

### 1.4 SSC Configuration Management Policy

In the establishment of Configuration Management on the SSC Project, this CM Plan presents the basic requirements for all subsequent CM Procedures. As these procedures are released they will be incorporated in the Project/Program level procedures system. To assure successful implementation of CM throughout the SSC project, the requirements of this Plan are implemented with the Associate Laboratories through Memorandum of Understanding and with equipment subcontractors through their contract requirements.

The following statements of policy are basic to the performance of the configuration management control procedure:

- Configuration management is a joint CDG/associate laboratory effort. CDG is responsible for the administration of the configuration management activity.
- Total SSC Project participation is required - Divisions, Associate Laboratories, System Integration Groups, Quality Assurance and Safety, etc.

- Progressive increase in degree of control will take place as the system design matures.
- Associate Laboratory participation is defined via ICDS and Memorandum of Understanding.
- Subcontractors establish their configuration management system to be consistent with the SSC Configuration Management System.
- Specific elements that come under configuration management will be defined at each major design review, Titles I, II and III by the CDG.
- Configuration management and change control will be by board action involving all project elements with due consideration for schedule impacts.
- Implementation of the configuration management plan shall be phased to the development nature of the project.
- The configuration management plan shall be compatible with the development and operational project phases.

#### 1.5 Configuration Management Responsibility

During the R&D phase of the project, the SSC Central Design Group (CDG) has overall responsibility for project planning, performance measurement and management. Figure 1-6 provides a diagram of project control elements under the aegis of the CDG Director. In this capacity he exercises management control through a continuing interaction with the line organization heads identified in Figure 1-3.

- a. The CDG Director chairs the CDG Coordinators Committee's performance parameters reviews as well as system requirements and interface reviews. The membership of the Coordinators Committee is shown in Figure 1-6.

As the project moves from the R&D phase to the final design phase, the Configuration Management organization for the SSC Project will be established with the necessary authority and responsibility to represent the SSC Program/Project Director in the implementation of CM policies and procedures.

The SSC Director will have overall responsibility for establishing and implementing a suitable Configuration Management System. He will be supported in this responsibility by each Program/Project Division System Integration Group Head who will have the responsibility for day-to-day configuration administration and control.

The functional relationship of the Project Director and the SSC Organization for purposes of Configuration Management is depicted in Figure 1-3. This functional relationship is intended to provide a uniform application of CM policies and discipline throughout the SSC Project including Contractors, Subcontractors, and associate laboratories.

- a. Each System Integration Group Head is responsible for:
  - the identification of baseline documentation and revision thereto
  - the release of the baseline documentation including sketches and drawings
  - the processing and review of SSC change requests to the baseline documentation
  - the accounting and tracking of these changes to provide for traceability and visibility of changes and their cost/schedule impact
  - the data storage and retrieval system
- b. The CM procedures will provide the administrative framework by which CDG will fulfill its responsibility for the management of technical interfaces among the SSC systems by:
  - disseminating interface information among all affected organizations
  - processing interface changes to all organizations and obtaining their input (technical, cost/schedule) to the change
  - coordinating related changes among contractors responsible for interfacing systems, thereby providing visibility into the total impact of the change.

## 2. Configuration Management During Project Evolution

### 2.1 CM Development

As the project evolves from R&D to operations, the level of configuration management at each phase of the project is designed to meet the following objectives.

#### 2.1.1 R&D and Preliminary Design Phase (Title I)

- Providing "informal" configuration control prior to final design approvals, allowing maximum flexibility in the design of each system consistent with the needs of interfacing systems.

- Establishing coordinated interface definitions among the SSC system elements and facilities
- Establish rules to control the dissemination of necessary information and design decisions to enable the preliminary design effort to proceed efficiently.
- Placing under control the Systems Requirements section of the SSC Systems Description.
- Establishing and administering the System Review Board (SRB) and the Management Control Board (MCCB).
- Defining the allocated baseline (benchmark) configuration of each system and selecting those subject to configuration control.

#### 2.1.2 Final Design Phase (Title II)

- Continuing the Change Management procedures established in the preliminary design phase with the added constraints of the final design and, as applicable, establishing and modifying the Allocated Baseline.
- Placing under control the selected documents and drawings comprising the Allocated Configuration Baseline, with provision for expansion.
- Developing more thoroughly the analysis of contemplated change decisions to ascertain the total impact of the change on all systems and in particular on projected construction phase cost and schedule.
- Defining the baseline configuration for each system for production/site activation/operations phase effort, which is subject to configuration control - the Product Baseline.

#### 2.1.3 Production/Site Activation Phase (Title III)

- Continuing the Change Management procedures established in the R/D preliminary design phase with the added constraints of the final design phase baseline configuration definition, known as the Product Baseline, to assure the integrity of design, fabrication, installation, checkout and operation.
- Maintaining accurate and current equipment item lists identifying all items of real property and equipment for the project, including software.
- Providing and accounting of the incorporation of approved changes in the documentation and the hardware.

2.1.4 Phase - Production/Site Activation/Operations

- Provide a fully documented configuration baseline for the operational phase of the project.

3. Configuration Management Plan Description

3.1 Configuration Management Functions

The functions of Configuration Management are illustrated in the functional flow diagram, Figures 1-1 and 1-2, which shows the sequential activities necessary for effective Configuration Managements.

The functional flow is related to the major sections of this CM Plan that describe the three primary functions of Configuration Management.

- 3.1.1 Configuration Identification - Activities include the development, preparation and baselining of selected technical documentation defining the evolving configuration of the SSC system. They also encompass the conduct of Title I and Title II design reviews. At the conclusion of each of the reviews, selected technical documentation is designated as part of the configuration baselines (i.e., Allocated Baseline) and placed under formal configuration control.
- 3.1.2 Configuration Control - Activities include the establishment of configuration control boards and the processing of changes within the CDG and associate laboratories and of changes affecting the external interfaces.
- 3.1.3 Configuration Status Accounting - Activities include record keeping and reporting function of Configuration Management. Through the medium of reports and records, the baseline definitions, change status and current equipment lists are maintained.

4. Configuration Identification

- 4.1 Description - Configuration Identification encompasses the identification, preparation, baselining and control of the documentation necessary to define, allocate and manage requirements and interfaces, produce, assemble, test and accept all elements of the SSC System. Figure 2-1, the SSC documentation tree provides an overview of the SSC documentation involved in the configuration Identification process. This documentation is incrementally developed and baselined in progressive stages as the project moves through the Title I, Title II and Title III and into the operational phase.

## 4.2 SSC Configuration Baselines

The configuration baseline established for each Level I WBS element at the completion of each phase of the project provides the benchmark for the succeeding phase. The baseline provides the basis for the control of changes and assures that all interrelated project activities have a common reference. The SSC baselines and the documentation related thereto are described in the following paragraphs.

### 4.2.1 R&D and Preliminary Design Phase (Title I) Baseline: The Title I Functional baseline, composed of the following documentation, represents the conceptual design and planning developed during the and immediately following the SSC conceptual design phase:

- SSC Project Management Plan - Outlines the plans, baselines and control systems to be employed in the management of the SSC project, and defines the roles and responsibilities of each of the major project participants.
- SSC System Requirements - Provides the general requirements sections for the SSC System Descriptions.
- Final Conceptual Design Report - Provides a description of the final conceptual design as a reference for the Title I preliminary design effort.
- Contracts - The Prime Contracts between DOE/URA/CDG and Associate Laboratories.
- Memos of Agreement - When consummated and agreed to by parties on both sides of the interface, Memos of Agreements defining interface requirements and procedures to be followed for control of the interfaces become part of the Title I Functional Baseline.

Thus, the Title I Functional Baseline defines and encompasses the total scope of work to be performed on the SSC Project including performance, cost, schedule and programmatic requirements.

### 4.2.2 Final Design Phase (Title II) Baseline

At the conclusion of the Title I preliminary design effort the following documentation will be baselined to expand the level of control and provide the design requirements to which the Title II detailed effort should be addressed.

- Updated Systems Requirements (SR's) - As a result of the preliminary design effort during Title I, the Systems Requirements shall be updated as required and validated at each Title I preliminary design review. General Requirements changes will be subject to formal configuration control approvals.
- Interface Control Documents (ICD's) - Interface Control Documents are developed by Systems Engineering activities during Preliminary Design. Based on the SR requirements for each system, the ICD's define the physical and functional interrelations between the systems comprising the SSC. The set of ICD's includes the internal interfaces within the SSC conventional facilities.
- Corresponding Drawings and Preliminary Design Sketches - The preliminary design of the SSC System will be embodied in a series of drawings and sketches. These documents will contain sufficient design definition to convey the key design parameters and concepts for each element at its Title I preliminary design review. The drawings and sketches shall be consistent with the requirements of the updated SR's and the ICD's. Those that are considered significant will be selected at the design reviews for baselining.
- When early procurement must be initiated, special data packages will be prepared. Approval of these packages, prior to release, will be obtained via the standard SSC procurement procedure.

#### 4.2.3 Production/Site Activation Phase (Title III) Baseline

During Title II, the preliminary design will be expanded and finalized. The following products of the final design effort will define the Construction requirements baseline for Title III:

- Detail Design Drawings - A working set of complete fabrication and assembly drawings for all systems of the SSC will be developed by the responsible contractors. These drawings and their identification shall meet the minimum preparation requirements of the applicable SSC/CDG specification.
- Procurement Specifications - Specifications prepared to describe the control parameters of items to be procured from sub-tier subcontractors will be included in the baseline. As a minimum, these specifications will contain performance requirements, envelope and interface requirements, design and construction requirements and acceptance test requirements. Where practicable, these specifications may be in the form of Specification/Source Control Drawings.

- Test Plans and Procedures - As part of the design package for the construction phase, the requirements for testing of complete systems, assemblies and components will be developed and baselined. Test Plans will provide the step-by-step requirements for conduct of the tests and the measurements that are required.
- Facility Construction - Construction drawings and specifications updated to show the "as-built" condition will be developed the construction of the SSC buildings and facilities.

#### 4.2.4 Operational Phase Baseline

The following documentation, updated and finalized to include all approved changes, shall define the completed SSC system ready to begin its operational phase:

- Complete Design Package - The complete design package consisting of System Analysis, Systems Requirements, Interface Control Drawings and Detail Design Drawings and Specifications will be validated against the actual device and supporting systems. The design package will contain all approved and incorporated changes and will accurately reflect the SSC system. It will serve, during the Operational Phase, as the reference for maintenance action and for the design of future modification to the SSC.
- Acceptance Test Reports - For all systems assembled or installed in the SSC complex, the applicable acceptance test reports will be contained in the Project File and will serve as part of the baseline data for the Operational Phase.
- Operation and Maintenance Manuals - Prepared in preliminary form during Title II and finalized during the construction phase, the set of Operation and Maintenance Manuals and computer program documentation included in the Operational Phase baseline provide the operators, scientists and technicians with the necessary data to utilize the SSC system.

### 5. Configuration Control

- 5.1 Description - Configuration Control is the process by which DOE, CDG, Associate Laboratories, Construction Contractors and Equipment Sub-contractors communicate, control and direct implementation or changes to the SSC baselines and associated systems and software. This plan establishes the requirements to assure uniform preparation and implementation of change control procedures in all SSC Sections and Sub-contractor organizations participating in the SSC Project.

Associate Laboratories Change Control tasks define in the Memorandum of Agreements interface with this procedure through the CDG personnel assigned to coordinate activities with them.

The basic configuration control procedure which provides for the initiation, processing and disposition of change packages (SSC Change Proposal) requires the existence of the following complementary procedures:

- Procedure for Preparation and Control of Sketches
- Procedure for Preparation and Control of Drawings
- Procedures for Preparation of SSC Specifications and for Processing Specifications for Review and Approval
- ICD Change Procedure
- Subcontractor Change Procedure

Total implementation of a system providing a technical and management review of changes will encompass the application of all of the above procedures within the CDG. The requirements of this section and its attendant procedures will be the base from which all participating subcontractors are to establish their procedures consistent with the scope and end product of their tasks.

## 5.2 Change Classification

The classification of a change provides the criterion by which technical and management personnel can determine the responsible authority to dispose of the change. The change classifications provided herein are both consistent with those used by government agencies, and provide SSC and its associates with design flexibility during the Title I and II phases while applying the added discipline required during the Title III phase. Two classes of changes, Class I and Class II, are defined in the following paragraphs.

### 5.2.1 Class I Changes

Class I Changes are those affecting any of the following areas set forth below and require DOE or CDG approval prior to implementation.

a. Baseline documentation pertaining to:

- SSC Project Objectives
- Performance as stated in SSC System Requirements

- Specified Control Drawings
- Safety

b. Contract Requirements

- Cost, Level 0, 1
- Schedule, Level 0, 1

5.2.2 Class II Changes for all Phases

A change may be defined as Class II only if none of the above areas is affected. These changes will be disposed of within the CDG and other participating organizations.

5.2.3 Change Classification Requirements for Equipment Subcontractors

In order to maintain upward visibility and uniformity of change classification throughout all levels of the project, the above requirements will be imposed upon Equipment Subcontractors in their contracts. The Baseline Documentation in this area is in the equipment specification and/or specification control drawings.

5.3 Change Packages

Change Packages are the medium by which CDG (only during R&D) and other participating organizations communicate proposed changes to initiate technical discussion and to provide proper management review for disposition and direct implementation. A number system for all change packages will be established to provide traceability and status during the review and implementation of changes. Three forms of change packages will be required during all phases of the SSC Project and are described below.

5.3.1 SSC Change Proposal Package (SSC-CPP)

SSC Change Proposal Package will be the primary document to initiate changes within the SSC/CDG organization. The format of the SSC-CPP is provided in Appendix to this plan. The SSC-CPP will be reviewed internally and, if determined by the Change Boards to be Class I, it will be utilized as the basis for an SSC Engineering Change Proposal.

5.3.2 SSC Engineering Change Proposal (SSC-ECP)

SSC Engineering Change Proposal will be the SSC-CPP plus the addition of detailed cost and schedule pages as well as descriptive information regarding a change to a major interface, if affected.

The cost and schedule data from an interfacing contractor will be obtained by the organization responsible for that contractor, so as to allow review of the total impact of a change prior to disposition. Formats for the additional pages are provided in Appendix (TBD). The SSC-ECP will include the cost, schedule and descriptive material of SSC Equipment Subcontractor Change Proposal.

### 5.3.3 Subcontractor Change Proposal (SCP)

Subcontractor Change Proposal will be in the same format at the SSC-CPP but will carry the Subcontractor's name. The requirement for SCP's will be included in all Purchase Orders as part of the Subcontractor Configuration Requirements.

### 5.3.4 Deviations and Waivers

A nonconformance to an approved configuration requirement, as contained in specifications, drawings and associated documentation will be authorized by an approved Deviation or Waiver. Review and processing of Deviations and Waivers will be the responsibility of the System Review Board (SRB). Deviations and Waivers are defined as follows:

- Deviation - specific written authorization, (DOE-CDG) granted prior to the manufacture of an item, to depart from a particular performance or design requirement of a specification, drawing or other document for a specific number of units or a specific period of time. (A deviation differs from an engineering change in that an approved engineering change requires corresponding revision of the documentation defining the affected item, whereas deviation does not contemplate revision of the applicable specification or drawing.)
- Waiver - written authorization to accept supplies/equipment, which through error during manufacture or when submitted for inspection, are found to depart from specified requirements but nevertheless are considered suitable for use "as is", suitable after repair by an approved method or restricted to a particular equipment or use.

Nonconformances affecting function or performance will be documented and require DOE-CDG waiver approval prior to use-as-is disposition.

All other nonconformances, after review by the SRB, will be documented and disposed of by material Review Board (MRB) action. The CDG QA supervisor will serve as chairman of the MRB and as an active participant in the SRB.

### 5.3.5 Change Package Origination

A change package is initiated as a result of CDG apparent needed internal changes, associate contractor proposed (interface) changes, equipment subcontractor changes, or DOE-CDG directed changes. For internal changes a SSC-CPP is prepared by the concerned individual or group in conjunction with the CM Manager. For subcontractor unsolicited SCP's, CDG changes, and interface changes submitted by Associate Laboratories the Systems Engineering group will prepare the SSC-CPP in conjunction with the Applicable Systems Integration Group Head.

### 5.4 Change Review Boards

Configuration change control will be by board action involving all project elements affecting technical or cost and schedule status.

#### 5.4.1 Change Review Board Composition

The CDG/Associate Laboratory Review Boards will be at three levels and shall be composed of responsible members as applicable to project phase as described below:

- System/Division Review Board (SRB)  
Members consist of:
  - System/Division Head - Chairman
  - Associated Laboratories Representatives
  - Systems Integration Engineer
  - QA & Safety Representative
  - Technical Group Representatives - as required
- CDG Management Configuration Control board (MCCB)

Permanent members consist of: <sup>(1)</sup>

- CDG Project Director - Chairman
- CDG Accelerator Division Head
- CDG Magnet Division Head.
- CDG Accelerator Physics Head
- CDG Conventional Systems Division

- CDG Project Planning and Management Division Head
- Associate Laboratories Representatives
- Delegated as necessary<sup>(1)</sup>
- Other members from CDG as needed
- Change Control Board (CCB)

Permanent members consist of:<sup>(1)</sup>

- Manager, DOE-SSC - Chairman
- Chief, Technical Operations Branch, DOE-SSC
- CDG Director
- CDG Deputy (Selected Division Head)
- Manager of Quality Assurance, CDG - Secretary
- The membership will be supplemented by personnel from CDG and Associate Laboratories as is necessary for the CCB to carry out its function.

#### 5.4.2 Duties and Responsibilities

SRB, MCCB and CCB requirements for review, processing and disposition of the change are provided below:

- The SRB will review the change and:
  - Assure that the change has been completely coordinated within CDG and Associate Laboratories
  - Assure that it is complete in terms of technical approach, rough order of magnitude cost and schedule.
  - Recommend the classification (Class I or Class II), and contractual responsibility, i.e., CDG, Associate Laboratories or Subcontractors.
  - Provide Engineering Management approval or disapproval of the change and:

<sup>(1)</sup> If required, designees may attend but full delegation of authority is thereby assumed.

- If "In-Scope", advance the approved change to the MCCB or CCB, as appropriate with PMS cost and schedule estimates for final disposition.
- If "Out-of-Scope", advance the approved change to the MCCB or CCB, as appropriate with necessary PMS schedule estimates for final disposition.
- Forward the disapproved change to the MCCB for review and possible appeal, if filed, and to CM who notifies Associate Contractor/Subcontractor with reason for disapproval.
- The MCCB will then review the change and:
  - Confirm the classification of change.
  - Confirm contractual responsibility.
  - Direct any required SSC-CPP action, including all documentation necessitated by PMS requirements.
  - Confirm the technical and contractual adequacy and necessity.
  - Provide approval or disapproval of the change and:
    - Direct implementation or an approved Class II change.
    - Send the disapproved Class II change to CCB for review and possible appeal if filed.
    - Direct the preparation of an RFBA upon approval in principle of a Class I change.
- The CCB in accordance with the SSC Project Management Plan meeting in conjunction with the MCCB will review and dispose of the change as follows:
  - Allocate and assure the orderly use of project contingency funds where necessary to cover real or forecasted increases to the approved Level I budget of any WBS.
  - Authorize the transfer of funds from the Level I of one WBS where there is a corresponding decrease in the Level I of another WBS.
  - Approve schedule changes which impact or are forecasted to impact approved Level I schedule milestones.

- Direct the preparation of appropriate documentation for revisions to the Level  $\phi$  cost or schedule and forward the change proposal to the DOE.
- Direct the preparation of appropriate documentation for changes to SSC Control Documents to the Technical Projects Office for approval.

## 5.5 Change Processing

Change Processing is the procedural flow utilizing all of the elements as described in Paragraphs 4.2 to 4.4 and integrating them into a change control system for timely review and disposition.

### 5.5.1 Change Package Identification

Change Package Identification will be established with a numbering system providing identification of the originating group or organization as a prefix to a sequential number which serializes the package. A simple number system that will also be used for traceability purposes is provided below:

SSC/XXXX-00001

XXXX = Prefix identifying the original group, e.g.,

CDG - Management  
CSD - Conventional Systems Division  
APD - Accelerator Physics Division  
ASD - Accelerator Systems Division  
MGD - Magnet Division  
PPD - Project Planning and Management Division  
LBL - Lawrence Berkeley Laboratories  
FNAL - Fermi National Accelerator Laboratories  
BNL - Brookhaven National Laboratories  
SUB - (Equipment Subcontractors  
A&E - Architect and Engineer

The packages are numbered by the Configuration Management Manager upon their approval by the Engineering Review Board. All proposed changes submitted to the SRB, regardless of disposition, will be assigned an SRB sequential control number, and will be maintained for record and status accounting purposes.

### 5.5.2 Change Package Flow

Block diagrams of the Change Package Processing is summarized in Figure 3-1 and 3-2. This basic flow integrates three forms of change packages: those initiated by CDG as a result of internal

requirements; those initiated as a result of Associate Laboratories(Interface Changes); and those initiated as a result of Equipment Subcontractor changes (SCP's). All three forms of changes are processed through the SSC Change Review Boards. If classified as Class II changes, they can be disposed of at the MCCB level for implementation. If classified as Class I, preparation of the detail cost and schedule portion of the SSC Change Proposal is initiated and the CCB is convened. If the change is approved, the change is implemented provided prior approval of DOE is not required. If prior approval is required, CDG will prepare and submit the package for DOE approval. If DOE approval is granted the MCCB approval is implemented.

The SSC-CPP, when authorized, will be signed and noted as approved. (If the contractual approval is required, the contract change authorization document number should also be noted). CDG will note on the SSC-CCP the assigned change budgets, and the approved package will be distributed for implementation. To maintain traceability in the Baseline Documentation, the Change Package Identification Number (CPIN) will be noted in revision records of all documents (SR's, Specs., Drawings, etc.). To provide similar traceability to hardware, when it is affected, the initial nameplate will note CPIN's incorporated at completion and modification nameplates will be used to indicate incorporation of CPIN's when rework is required to completed hardware.

Appendix (TBD) to this plan provides sample page of the following change packages and request:

- SSC Change Proposal Package
- SSC Engineering Change Proposal
- Subcontractor Change Request

## 6. Configuration Status Accounting

### 6.1 Description

The status accounting function of configuration management provides traceability of configuration baselines and changes thereto and acts as a management tool for accomplishing all related tasks resulting from such changes. In addition it provides a listing of the current complement of all items of real property and equipment for the SSC Project with identification as to the configuration status of each item.

## 6.2 Responsibility for Status Accounting

Primary responsibility for status accounting on the SSC Project rests with CDG. However, each of the prime contractors involved in the project has the responsibility for establishing and maintaining appropriate record keeping, which shall be compatible with the other contractors and SSC such that they can be integrated into one system during the operational phase.

## 6.3 Status Accounting Reports

Configuration status accounting records/reports will be initiated at the time the first Title I Allocated Baseline is established. These reports will assure that there will be a configuration record documenting all approved configuration changes. As a minimum, it will include identification of:

- The technical documentation comprising the current configuration baseline.
- Contractual information for each configuration item including responsible contractor identification.
- Approved changes to configuration including the items to which the changes apply, the implementation status of each change, and the group responsible for implementation.

### 6.3.1 Baseline Status Report

A Baseline Status Report will be issued at the completion of each design review at which a baseline is established or incremented. In the absence of design review activity, it will be issued on a monthly basis to reflect changes to baselines.

The Baseline Status Report will list, by WBS, the documentation comprising the baseline for each system of the SSC. For each document, the current released revision will be listed along with pending revisions due to proposal activity.

### 6.3.2 Change Status Reporting

Several change status reports will be maintained by Configuration Management.

- SSC-CPP and ECP Summary Report - will provide detail status of Class I and Class II changes. Section I will provide a detailed status of each pending and in process SSC-CPP and ECP. Section II will provide a list of each SSC-CPP and ECP with an indicator as to its status, a record of its authorization, the date of its incorporation and other pertinent data.

- Board Meeting Minutes - Minutes of each meeting of the MCCB and SRB will be issued, stating the recommendations and decisions made. In addition, a summary index of change identification order will be maintained.

### 6.3.3 Equipment List

Throughout the Project a list of SSC equipment and real property will be maintained. this equipment list will correlate to the work breakdown structure and will indicate the development/production/procurement/on-site/installation/checkout status of each item. In addition it will indicate the effect of changes accomplished and scheduled for accomplishment on each item.

The equipment list will provide the basis for configuration audit (in conjunction with the Title III Design Reviews) whereby the engineering design (As-Designed), documented by the drawings, can be compared to the completed equipment/facilities hardware (As-Built). At the end of title III the Status Accounting function for the original design and development of the SSC System (and changes thereto) will be completed. the Operational Phase configuration Status Accounting function will primarily be associated with monitoring changes associated with test results, improvement of capabilities and incorporation of new technology.

### 7.1 Documentation Release and Maintenance

All SSC documentation shall be identified by a document identification number that shall not be changed upon revision. The identifier may consist of numbers or combinations of letters, numbers and dashes. Revision letters shall be used as a suffix to the document number to indicate a revision. Each document shall contain a revision log providing an audit trail to the revisions made to the document and serving as a release record. The log shall contain the following data as a minimum:

- Release date
- Revision letter
- Revision Authority (Change Proposal Package and/or Engineering Change Proposal Number)
- Pages Revised

Revision shall be by Specification Change Notice (SCN), amendment, or by complete revision when extent of the change warrants.

Replacement pages issued by SCN or by amendment shall have the revised paragraphs designated by a revision bar in the margin, and shall be identified in the upper left corner by the revision letter and date.

7.1.1 Engineering Drawings

The release and maintenance of engineering drawings shall be in accordance with the requirements presented in the CDG drawing control specification.

7.1.2 Design Reviews

As the project progresses, CDG will conduct a series of reviews for each system and major component. Although, in practice, there will be a continual reviewing throughout the design and construction phases, four specific reviews, shown in the CM phasing chart, Figure 1-1, are identified as design controls for each system or major component as required by the applicable design review procedure.

- Preliminary Design Requirements - The first review will be held at the start of each system or major component preliminary design task. The purpose of the review will be to make certain that the SR Part 1 (Functions and Design Requirements) and represent the correct inputs to the preliminary design task.
- Preliminary Design Reviews - The second review will be held near the end of the Preliminary Design Phase for each system or major component. The purpose of the review will be to determine that the preliminary design package (as amended, if required) satisfies the project requirements and represents an acceptable basis for starting the final design task for the particular system or major component.
- Final Design Requirement Review - The third review held at the start of the final design task to make certain that any changes following the Preliminary Design Review are properly identified, approved, and incorporated in the final design and that all design requirements accurately interpret the System Requirements.
- Final Design Review - This fourth review will be held near the end of the final design phase for each system or major component. The purpose of the review will be to determine that the final design package satisfies the project requirements and represents an acceptable basis for starting the fabrication or procurement of the major system or component.