COMMAND AND CONTROL SOLUTIONS DIRECTORATE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW

SOFTWARE QUALITY ASSURANCE PLAN

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SOFTWARE ENGINEERING CENTER
U.S ARMY COMMUNICATION-ELECTRONIC COMMAND
Aberdeen Proving Ground, Maryland

APPROVAL

C2SD FBCB2

Software Quality Assurance Plan

No. ABS-TAC-9021-SQAP-001

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Document Control Information

The Command and Control Solutions Directorate (C2SD) control this FBCB2 Software Quality Assurance Plan (SQAP). The procedures described in this document only apply to FBCB2 project

The FBCB2 project shall adhere to the requirements of this Document. No deviations or waivers shall be implemented without the written consent of C2SD Management. Changes require the approval of the Chief, C2SD Integration and Test Division listed on the cover page of this document.

Submit proposed changes to this document to the C2SD FBCB2 Project Assurance Group.

RECORD OF CHANGES

Version/change Page Packaged	DATE	Pages Affected	Type Of Change
1.0	30 April 2013		Original

Table of Contents

1 Introduction 1

1.1 Purpose 1
1.2 Scope 1
1.3 Document Overview 2
1.4 Relationship to Other Plans 2

2 Referenced Documents 3

2.1 C2SD FBCB2 Project Documents 3
2.2 Applicable Standards 3

3 Resources 3

3.1.1 Responsibility and Authority 5
3.1.2 Training 8
3.1.3 Work Products, Documents, and Records 8
3.1.4 Stakeholders 8
3.1.5 Defined Process 8
3.1.6 Metrics 9
3.2 Goals and Objectives 9
3.3 Monitoring and Measurement 9
3.3.1 PA Roles and Associated Effectiveness Criteria 9
3.4 Internal and External Assessments 9
3.5 Communication and Reporting 10
3.6 Quality Assurance 10
3.6.1 Process Evaluations 10
3.6.2 Evaluation Schedule 11
3.6.3 Product Evaluations 12
3.6.4 Non-Compliances 13
3.6.5 Reports 14
3.6.6 Verification, Validation, and Reviews 15
3.6.7 Support 18

4 Notes 19

4.1 Glossary 19
4.2 Acronyms 20

List of Figures

Figure 3-1. C2SD SEC PA Organization 6

List of Tables

Table 1.1-1 Process Areas 1
Table 1.4-1 Relationship to Other Project Plans 2
Table 2-4 Applicable Standards 3
Table 3.1-1 PA Resources 4
Table 3.1-2 Roles, Responsibilities, and Authority 7
Table 3.1-3 Supporting Processes 9
Table 3.10-1 Process Evaluations – Defined Process 11
Table 3.10-2 QA Reports 14
Table 3.10-4 Verification, Validation, and Reviews 16
Table 3.10-5 QA Support 18
Table 4-1 Definitions 19

1 INTRODUCTION

This Software Quality Assurance Plan (SQAP) provides the plan for performing Project Assurance (PA) and Quality Assurance (QA) activities on the C2SD FBCB2 program.

1.1 Purpose

This plan establishes the common approach to be employed by all PA-related groups on the project. The purpose of this SQAP is to define the approach for:

- PA to ensure mission success
- QA to ensure a system is in place for the continual improvement of processes
- QA to ensure the quality of processes and products

PA ensures process and product compliance. Listed below are essential process areas to ensure Mission success.

Table 1.1-1 Process Areas

Process Area	Plan Source
Project Planning	C2SD FBCB2 Project Plan
Measurement and Analysis and Quantitative Project Management	C2SD FBCB2 Measurement Plan
Action Tracking System	C2SD FBCB2 ShareCenter
Software Engineering	C2SD FBCB2 Software Development Plan
Software Configuration Management	C2SD FBCB2 SCM Plan
Data Management	C2SD FBCB2 DM Plan

PA ensures processes essential to mission success are proven to be effective through oversight, independent reviews, and assessments. The PA role is effective if deficiencies are identified and corrected before key program areas (e.g., project performance, product quality, safety, technical performance, or warfighter expectations) are affected.

1.2 Scope

This plan is in compliant with FBCB2 project requirements and overarching C2SD organizational requirements. The effort specifically addressed by this plan encompasses all of the activities to be undertaken by the project team, to accomplish Project Assurance within project cost and schedule constraints, while fully satisfying all project work products.

The project's software development defined processes are documented separately in the FBCB2 ShareCenter. This SQAP defines the planning necessary to implement the defined process, but does not include the defined process. Other supporting processes, such as procedures, standards, templates, and forms, are developed as needed.

1.3 Document Overview

This plan is organized as follows:

Section 1: Describes the scope and content of this plan and its relationship to other project plans.

Section 2: Lists the documents referenced in this plan.

Section 3: Describes the detailed plans for PA activities and QA.

Section 4: Provides a glossary and list of acronyms used in this plan.

1.4 Relationship to Other Plans

The contents of this plan are related to the project plans identified in Table 1.4-1. The current versions of the documents below are used.

Table 1.4-1 Relationship to Other Project Plans

Project Plan	Relationship
C2SD FBCB2 Project Plan	Defines the organizational structure, roles and responsibilities, and provides a mapping of product line practice areas to each plan. Includes the overarching plan that defines the budget, schedule, resources, reviews, etc., for implementing and monitoring PA. Includes stakeholders plan
C2SD FBCB2 Software Development Plan (SDP)	Defines the software development activities and products that PA supports and evaluates.
C2SD FBCB2 Measurement Plan (MP)	Defines the MA-related metrics to collect, analyze, use, and report for visibility into PA performance and product quality.
Integrated Master Schedule (IMS)	Defines the high-level schedule for PA activities. Part of the Project Plan.
C2SD FBCB2 Test Plan	Defines PA role in acceptance testing.
C2SD FBCB2 Software Configuration Management Plan (SCMP)	Defines the approach for handling formally controlled PA work products.
C2SD FBCB2 Data Management Plan Management Plan (DMP)	Defines documents and records control for PA work products.
C2SD FBCB2 Training Plan (TP)	Defines project-specific training requirements for PA activities. Division-specific training requirements are documented in the division's training plan.

2 REFERENCED DOCUMENTS

The documents listed in this section form a part of this plan to the extent specified herein. In the event of conflict between the documents referenced herein and the contents of this plan, the contents of this plan, upon final approval, including approval of waivers and deviations, are considered the superseding authority. The current versions of these documents are accessible on the C2SD Portal, C2SD FBCB2 ShareCenter and SEC PAL. The portal URL is contained in the FBCB2 Data Management Plan.

2.1 C2SD FBCB2 Project Documents

Documents identified in attachment A, project plans, specification, diagrams, and SOPs developed during the project planning and execution will be utilized during the Post Production Software Support (PPSS).

2.2 Applicable Standards

Documents identified in Table 2-1**Error! Reference source not found.** are the applicable standards.

Table 2-1 Applicable Standards

Title
Software Engineering Institute (SEI) Capability Maturity Model Integration (CMMI) Dev 1.3
SEC PPQA Process Description Document Number – Sec Support-001 V4 19 April 20012

Software Quality Assurance Roles, Resources and Activities Plans

This section defines the plans for performing PA activities, which includes QA activities.

3 RESOURCES

Table 2.2-1 defines resources for performing PA activities, developing the PA work products, and providing the requisite services of the PA process. PA resources also cover System Assurance, Safety Assurance, Reliability Assurance, Quality Assurance, QMS, Supplier Quality Management (SQM) system, independent reviews, and internal and external assessments.

Table 2.2-1 PA Resources

<table>
<tr><th>Resource</th><th colspan="2">Description</th></tr>
<tr><td>Budget</td><td colspan="2">The C2SD FBCB2 Project Plan – defines the budget for PA activities.</td></tr>
<tr><td>Staffing</td><td colspan="2">The C2SD FBCB2 Project Plan – contains the staffing profile for PA personnel.

PA personnel performs CM, DM and QA functions. PA ensures critical process areas are performed effectively. The QA ensures an objective and effective QA function is established and implemented. QA staff performs QA evaluations, inspections, and support activities. See section 3.1.1 for specific PA staff responsibilities.</td></tr>
<tr><td>Facilities</td><td colspan="2">The C2SD FBCB2 Project Plan – describes the facilities used across the project. There are no PA-specific facilities needed by the project. PA personnel should be provided with the following resources to support PA functions:
Adequate office space
A personal computer with the necessary operating system and applications needed
Read access to the project repositories
Protected area on the project network to host PA documents and records</td></tr>
<tr><td rowspan="9">Tools</td><td>Tool</td><td>Application</td></tr>
<tr><td>Lessons Learned Database</td><td>Repository for Lessons Learned</td></tr>
<tr><td>Microsoft Word</td><td>Documentation and Reports</td></tr>
<tr><td>Microsoft Excel</td><td>Metrics tool for the repository of measurement data, and to statistically analyze measurement data and create graphs for presentations</td></tr>
<tr><td>Microsoft PowerPoint</td><td>Briefings and Presentations</td></tr>
<tr><td>Microsoft Project</td><td>Planning, Scheduling, and Resource Utilization</td></tr>
<tr><td>Tracking Database (ClearQuest, DOORS)</td><td>C2SD FBCB2 Online Software Change Reporting (SCR) Database (development) ClearQuest; Requirement Change Request (CR) DOORS, Document Problem Report (DPR) Reporting System ClearQuest</td></tr>
<tr><td>C2SD FBCB2 Technical Data Package (TDP)</td><td>Document repository for Software Development organization</td></tr>
<tr><td>C2SD FBCB2 ShareCenter</td><td>Document repository for Plans, procedures, Project technical documentation, records, and other internal & external documents.</td></tr>
<tr><td>QA Plan Template</td><td>QA Plan Development</td></tr>
</table>

3.1.1 Responsibility and Authority

Error! Not a valid bookmark self-reference. defines roles, responsibilities, and authority for performing QA activities, developing QA work products, and providing services of the QA process throughout the life cycle of the FBCB2 project.

The SQA activities are administered by the FBCB2 Project Assurance (PA) Group, who reports to the FBCB2 Project lead, for functionally-related activities, and to the C2SD PPQA for various project-related process and product audits. This reporting structure provides for the independence of the PA Organization in the execution of SQA activities as well as providing direct access to the C2SD Director for SQA-related activities (See Figure 3-1).

Figure 3-1 C2SD Organization

Note: FBCB2 Project Assurance (PA) performs the CM, DM and QA functions.

Additional project roles, responsibilities, and authority and the overall project organizational structure are described in the C2SD FBCB2 Project Plan (PP).

Table 2.2-2 Roles, Responsibilities, and Authority

Role	Responsibilities and Authority
PA Group	Plans and executes the PA program that includes QA, CM, and DM
	Manages the PA team, supports project planning and project monitoring & control
	Manages to the plan, budget, schedule, and addresses modifications as appropriate
	Ensures personnel and suppliers are trained and aware of PA objectives
	Oversees SA, safety assurance, quality assurance, SQM system, risks, and independent reviews
	Analyzes metrics to identify deficiencies and to evaluate PA program effectiveness
	Provides PA identified deficiencies to the CPAS
	Assists in managing the CPAS
	Provides support to resolve deficiencies
	Tracks deficiencies to closure
	Reports data for critical process areas and deficiencies to the PL
	Reports PA activities, deficiencies, and incidents to C2SD FBCB2 PL
	Flows down quality PA requirements in supplier agreements
	Provide policy/process guidance and expertise
	Provide PA/QA status, issues, and expertise to support management monitoring and control activities at the C2SD FBCB2 Staff Meeting
	Provide PA/QA guidance and status of all quality related processes at the SSEPG meeting
	Reviews and approves project plans and the C2SD FBCB2
QA	Establishes and maintains the SQA Plan including schedule and budget
	Schedules, conducts, and manages objective process, product, and limited scope audits
	Ensures non-compliances are identified, tracked, and resolved
	Reports SQA status, results, metrics, and issues to PA Lead
	Participates in the project's Change Control Boards (CCBs)
	Conducts or supports quality surveys and evaluations
	Supports internal and external assessments and independent reviews conducted by C2SD organization, when applicable
	Provides policy/process expertise to the project
	Participate in peer reviews and review board activities
	Supports supplier pre-award surveys
	Performs supplier assessments
	Implements root cause and corrective action processes at suppliers locations as necessary
	Assures procured items and services will meet the appropriate quality and technical requirements

Role	Responsibilities and Authority
	Assesses how well suppliers are managing their efforts
	Assesses the effectiveness of supplier practices
SCM	As defined in the Software Configuration Management Plan
DMP	As defined in the Data Management Plan

3.1.2 Training

SQA personnel are trained per the standard training requirements for the C2SD FBCB2 project. This standard includes project presentation on roles specific subject matter. Additional project specific training courses are completed and recorded as needed. Training material is located on the C2SD FBCB2 ShareCenter. At a minimum, training will include;

- Internal FBCB2 audit process
- Peer Reviews
- Clear case/ClearQuest process flow
- C2SD PPQA process

3.1.3 Work Products, Documents, and Records

The C2SD FBCB2 Data Management Plan (DMP) contains a table of work products, documents, and records that are under control, and includes the various levels of control. **Error! Reference source not found.** 3.1-3 lists QA specific work products to be placed under control.

3.1.4 Stakeholders

See the C2SD FBCB2 Project Plan (PP) for the stakeholders relevant to PA activities and their level of involvement.

3.1.5 Defined Process

The defined process which includes high-level process descriptions for the QA process is a tailored version of the standard process documented in

Additional supporting processes, such as procedures, standards, checklists, templates, and forms, are developed by the project, as needed. **Error! Reference source not found.** 3.1-3 provides additional supporting processes for implementing software quality assurance.

Table 2.2-3 Supporting Processes

Supporting Process	Purpose
C2SD FBCB2 QA Process Audit Procedure	Describes the planning, scheduling, performing, reporting, follow-up, and closure of process audits performed by QA.
Quality Assurance Incident, Problem and Risk Reporting and Closure	Describes the methods for reporting non-compliances, resolutions and risks

3.1.6 Metrics

The purpose of metrics is to monitor and control the QA process, and to provide visibility into project performance and product quality. PA reports metrics results to the C2SD FBCB2 PL and relevant stakeholders.

Listed are metrics generated by SQA:

- Non-Compliant Findings
- Non –Compliance closures

3.2 Goals and Objectives

In addition to the PA goals and quality policy, referred to as quality goals, the measurable PA goals and quality objectives were identified and align with the business goals. The C2SD FBCB2 project quality goals are located in the Measurement Plan. The PL communicates PA goals and quality objectives to employees and emphasizes the importance of these goals by presenting at C2SD Program Management Reviews (PMRs).

3.3 Monitoring and Measurement

3.3.1 PA Roles and Associated Effectiveness Criteria

The effectiveness of the PA roles identified and monitored by analyzing metrics and/or reviewing evidence. Deficiencies are entered into the C2SD FBCB2 ShareCenter Action Item List to ensure all deficiencies are formally tracked through closure. When effectiveness cannot be determined upon Action closure, then follow-up audits can be scheduled to ensure effectiveness as needed. PA deficiencies, corrective and preventive actions, and quality assurance concerns are reported at C2SD Quarterly Process Control Board

3.4 Internal and External Assessments

The purpose of internal and external assessments is to objectively evaluate the project's compliance to and effectiveness of the Quality program, and take timely actions to correct identified problems. To ensure impartiality and objectivity, Quality Assurance personnel who conduct the assessments are knowledgeable about, but independent of, the activities and work products being evaluated.

External assessments include an assessor outside of C2SD Organization who reports results back to the SEC Corporate QA.

SQA also conducts process audits and product evaluations to objectively evaluate adherence to the organizational and project requirements. The audits also ensure the project processes continue to meet Quality Assurance requirements and are effective.

3.5 Communication and Reporting

PA importance and effectiveness are communicated to the project via awareness training, staff meetings, all hands meetings, broadcast e-mails, websites, and the C2SD FBCB2 ShareCenter. Communications emphasize to project staff the relevance and importance of their activities, how they contribute to the achievement of PA and quality goals, the importance of meeting customer, statutory and regulatory, and requirements, and most important, how quality is the responsibility of all project staff.

The PA organization interfaces with the Project Lead to:

- Obtain review and approval of project QA plans
- Obtain PA requirements during the execution
- Provide QA-related project metrics
- Report mishaps and close calls

The PA staff reports QA status to the C2SD PPQA location facilitator, who ensure higher level management are aware of FBCB2 QA-related issues.

3.6 Quality Assurance

This section defines the approach for QA to ensure the quality of processes and products. This plan establishes the common approach to be employed by all QA groups on the project, including subcontractors. This plan is used as the basis for managing QA activities during all life-cycle phases of the project.

Project personnel are responsible for the quality of products developed, for following plans and procedures for critical steps that affect quality, and for participating in identifying, reporting, and resolving quality issues.

3.6.1 Process Evaluations

QA performs process evaluations to objectively evaluate processes against the contract, policies, the defined process, and applicable standards and procedures and to assess the effectiveness and efficiency of the project's quality-affected processes and activities, including the effectiveness of QA processes and activities. QA process evaluations ensure projects:

- Perform in accordance with the defined process and procedures, where applicable

- Perform activities when scheduled
- Use correct versions/revisions for inputs
- Perform all activities as planned
- Produce expected outputs consistent with exit criteria

QA process evaluations are scheduled based on project life-cycle activities, and the results are documented and reported. Process evaluations are scheduled in the Quality Assurance Process Audit Schedule. QA evaluation results are reported in accordance with Section 3.7 Reports. Evaluation frequencies are adjusted based on quality results and performance. Evaluation non-compliances are identified, tracked, and resolved in accordance with Section 3.8.4 Non-Compliances.

QA process evaluations to be performed against the project's defined process are identified in Table 3.6-1.

Table 3.6-1 Process Evaluations – Defined Process

Process Evaluation	Defined Process	Schedule/Frequency
Inspection/Reviews	Management, Support, Technical, Organizational	Yearly
Checklist/Audits	Software development process areas	Monthly
Meeting Participation	Peers reviews, PMRs, Test Readiness Review	As required

Process evaluation results are documented and controlled in accordance with Section 3.1.4 Work Products, Documents, and Records. Specific evaluation results documented include:

- Purpose of the evaluation
- Process and/or procedure that was evaluated
- Date when the evaluation was conducted
- Names and positions of the individuals who participated in the evaluation
- Evaluation criteria used, or a reference to the evaluation criteria
- Evaluation findings.

3.6.2 Evaluation Schedule

SQA process/product evaluations are scheduled based on project life-cycle activities, and the results are documented and distributed to the responsible process lead and PL. Process/Product evaluations are scheduled and controlled in the C2SD FBCB2 Audit Schedule. Evaluation frequencies may be adjusted based on quality results and performance. Evaluation non-compliances are identified, tracked, and resolved in accordance with Section 3.6.4 Non-Compliances

SQA process/product evaluations are conducted in accordance with the approved evaluation schedules. The C2SD FBCB2 Audit Schedule is part of the planning process but is generally kept as a stand-alone document as the schedules are living documents that frequently change. The evaluation schedule is reviewed periodically and adjusted accordingly. The evaluation schedule is approved by PL in coordination with the QA rep. It is revised to show schedule changes (including slips) with rationale for change. Each evaluation schedule shows:

- Date planned
- Revised dates (document rationale for re-plan)
- Completed date

The C2SD FBCB2 audit schedule is developed for a 12 month period.

3.6.3 Product Evaluations

QA performs product evaluations to objectively evaluate products against the Project requirements, policies, the defined process, and applicable standards and procedures. Product evaluations include internal work products used to support process implementation and critical to the project. QA product evaluations ensure products are:

- Compliant with defined criteria and standards
- Complete and include the appropriate level of detail
- Consistent internally and externally with other products
- Traceable to parent products, where applicable

Product evaluations are performed, and the results are documented and reported. Evaluation frequencies/sample sizes are adjusted, where appropriate, based on quality results and performance. Evaluation non-compliances are identified, tracked, and resolved in accordance with Section 3.10.5 Non-Compliances.

Additional tasks:

- Conduct traceability matrices audits (Requirements, Design, Code, and Test)
- Conduct software baseline audits on a sample basis to ensure baselines are correct, SCRs are traceable to builds and thoroughly review the VDD. Ensure discrepancies in the VDD are corrected. Include review of the ECM organization to ensure ECM personnel comply with CM procedures
- Conduct audit on ClearCase and ClearQuest databases

Product evaluation results are documented and controlled in accordance with Section 3.1.4 Work Products, Documents, and Records. Specific evaluation results documented include:

- Purpose of the evaluation
- Product that was evaluated
- Date when the evaluation was conducted
- Names and positions of the individuals who participated in the evaluation

- Evaluation criteria/standard used, or a reference to the evaluation criteria
- Evaluation findings.

3.6.4 Non-Compliances

QA identifies, tracks, and ensures the resolution of non-compliances identified during process and product evaluations. Non-compliances are identified when evaluation criteria are not met. QA ensures non-compliances are:

- Identified, documented, and communicated
- Tracked in the C2SD PPQA action item database
- Verified for effectiveness of corrective and/or preventive actions taken
- Closed including follow-up of corrective actions, where appropriate
- Resolved with C2SD management and the FBCB2 PL, where necessary

Components of the QA non-compliance are tracked in accordance with the C2SD PPQA process and the C2SD FBCB2 PP.

3.6.5 Reports

QA reports communicate the results of process and product evaluations and product inspections, status of non-compliances, QA progress, and issues. QA reports ensure the project lead and PPQA location facilitator, where applicable, are aware of process and product quality performance and issues. These reports provide the feedback, status, and data needed to ensure effective corrective and preventive actions. QA reports support management in monitoring QA activities against this plan.

Specific QA reports are identified in Table 3.10-2.

Table 3.6-2 QA Reports

Report	Content	Distribution	Schedule
Process Evaluation	Results of process evaluations (Section 3.2) including non-compliances	• Process Location Facilitator • Project Lead	14 days following completion of process evaluations
Product Evaluation	Results of product evaluations (Section 3.3) including non-compliances	• Product Owner • Project Lead	14 days following completion of product evaluations
Product Inspection	Results of product inspections including non-compliances	• Product Owner • Project Lead • Purchasing (Received Product)	As inspections are completed
Non-compliance Status	Closure status of non-compliances	• Project Lead	Monthly
QA Progress and Metrics	QA metrics, trends, and process status	• Project Lead • C2SD PMR	Quarterly
Unresolved Non-compliance Issues	Quality issues unresolved at project level	• C2SD Director	As needed

3.6.6 Verification, Validation, and Reviews

QA supports verification, validation, and review processes throughout the project life-cycle. QA verifies that verification, validation, and review activities and associated work products are in compliance with project plans and processes, problems and issues are identified, and provides recommendations and guidance. QA identifies problems and issues and provides recommendations and guidance to assist the project with performing verification, validation, and reviews. QA ensures:

- Peer reviews are effective in identifying and removing defects
- Formal test plans are compliant, consistent, complete, and traceable
- Tests are executed as planned and problems are resolved
- Test reports are consistent with test results
- Validation activities ensure customer needs are met
- Management and technical reviews track and control development and support activities and resolve issues and problems

QA criteria, methods, and schedule for ensuring the integrity and control of verification, validation, and review processes are identified in Table 3.10-4.

Table 3.6-3 Verification, Validation, and Reviews

Activity	QA Criteria	Verification Method	Schedule
Peer Review	Peer reviews are performed and are effective in identifying defects	Process Evaluation (Section 3.2)	Verification process evaluation schedule
		Peer review participation	Requirements, design, and implementation peer reviews
Formal Software Test Procedures	Test plans/procedures are compliant, consistent, complete, and traceable	Product Evaluation (Section 3.3)	Formal test planning
	Test are executed as planned and problems resolved	Test Witnessing	In accordance with project schedule or Project Lead direction.
	Test reports are consistent with test results	Product Evaluation (Section 3.3)	In accordance with project schedule or Project Lead direction.
Validation	Validation activities ensure customer needs are met	Validation participation as requested by Project Lead	In accordance with project schedule or Project Lead direction.
Management and Technical Reviews	Reviews are performed as planned; QA status and issues are identified	Process Evaluation (Section 3.2	Verification process evaluation schedule
		Review participation	Management and technical review schedule
Software Procedure Dry Run	Test are executed as planned and problems resolved	Test Witnessing	In accordance with project schedule or Project Lead direction.

3.6.6.1 Verification and Validation for Software

QA participates in verification and validation activities. QA attends validations to ensure project needs are being met. QA verifies that verification and validation activities are designed to exercise the software complexity, throughout the anticipated range of operational conditions, which may include nominal, off nominal, design-stressing, failure, and degraded mode conditions. Verification and validation can be conducted at the three levels listed:

a. Software Integration testing - Objectives are to conduct activities to verify that software to software and software to hardware interface functions are properly implemented.
b. Family of Systems Integration testing - Objectives are to verify that the operational subsystem/system provides the required subsystem/system capabilities and satisfies performance requirements.

3.6.6.1.1 Witnessing

QA personnel witness formal tests. Witnessing of formal tests ensures that the product meets requirement, tests are conducted using configuration controlled software and in accordance with approved test procedures. QA impounds the test data upon completion of the formal test by placing the test data into a Test Folder and filing in a locked file cabinet or by baselining electronic files in a read only area.

3.6.6.1.2 Acceptance

Acceptance is a general term for any mechanism that is established to identify and record the customer's approval of a deliverable work product or end product. Acceptance of a system or a hardware or software product may be based on the results of a verification or validation method such as a test or a demo, but acceptance can also apply to approval of deliverable documents or other work products using methods such as document review or a physical configuration audit. QA audits acceptance products and activities for compliance to policies, project plans, and the defined process.

3.6.6.2 Reviews

Reviews of the software development process are implemented throughout the software development cycle. QA attends reviews and verifies that the reviews practices conform to C2SD FBCB2 project requirements. These practices consist of selected reviews of:

a. Software development for objective evidence that the SDP processes are being followed.
b. Internal peer reviews, such as design walkthroughs, code walkthroughs, test readiness reviews, code turnover reviews.

3.6.6.2.1 Software Peer Reviews (Walkthroughs)

Peer reviews are conducted on new products, significant changes to products, or if there are reasons to warrant additional attention. Peer reviews are conducted during all product life-cycle phases.

The implementation of peer reviews is evaluated by QA to assure the conduct followed is consistent with the requirements

QA documents results of peer review evaluation on the Peer Review Audit checklist as defined in the Peer Review process document.

3.6.7 Support

QA performs support activities throughout the project life-cycle. Support activities supplement QA evaluations and inspections by providing proactive involvement in day-to-day project activities. QA verifies that activities and associated work products are in compliance with project plans and processes, identifies problems and issues, and provides recommendations and guidance to assist the project with planning and execution.

QA support of project activities are identified in Table 3.10-5.

Table 3.6-4 QA Support

Project Activity	QA Support	Schedule
Project Planning	Provide policy/process guidance and expertise during development of C2SD FBCB2 organizational documentation including deviations and waivers, and project planning including processes, procedures, and standards	Proposal/project startup or contract modifications
Change Control Boards (CCBs)	Participate in the project's Change Control Board (RMB, SCCB, DCCB, PCCB & RCCB)	Throughout the project life-cycle as required
Project Status Meetings	Provide QA status, issues, and expertise to support management monitoring and control activities	Weekly
Meeting participation	Sample Peer Reviews, CDR, PDR, SRR, SDR and other technical reviews covering products affecting FBCB2. Audit peer review process, presentation, minutes and coordinate with peer review presenters on peer review requirements.	As required

4 NOTES

This section defines terms and acronyms typically used across all project plans.

4.1 Glossary

The following definitions are provided for terms used in this plan.

Table 4-1 Definitions

Term	Definition
Corrective Action	Action taken to correct a detected non-conformity or other undesirable situation. The action taken does not necessarily prevent the problem from re-occurring again.
Defined Process	A process tailored from the C2SD standard process and used to manage and execute project activities. The SEC waiver policy and guidelines will be used to perform the tailoring.
Establish and Maintain	To generate, document, implement, keep current, and make available. For example, "Establish and maintain project plans" means "Document, establish, maintain, make available (i.e., web site), and use project plans."
Legacy	Legacy is used to refer to FBCB2 versions 6.4.4.2 and 6.5.2.2 (including the Operations Center and NOC). Basically, legacy is all versions of FBCB2 released prior to Joint Capability Release (JCR).
Life-Cycle	Partitioning of the life of an item (product, project, development, etc.) into phases that guide progression of an activity from beginning through end state. Life-cycle models are defined in C2SD Organizational process definition.
Non-compliance	An instance of a process or product that does not meet a defined requirement, process, standard, plan, or procedure.
Phase	Individual part of a life cycle (i.e., design phase).
Policy	Regulations and requirements to be followed by the organization, its projects, and employees. Established and maintained through an approval body.
Preventive Action	Action taken to correct the root cause of a non-conformity or other undesirable situation, to ensure the problem will not occur again.
Process	Set of interrelated or interacting activities that transform inputs into outputs (i.e., requirements, design, etc.).
Process Asset	Any artifact that describes processes (i.e., policies, process descriptions, standards, procedures, etc.), implements processes (i.e., project plans, metrics reports, technical documents, etc.), improves processes (i.e., process performance measures, process action plans, lessons learned, etc.), or supports process implementation (i.e., templates, forms, spreadsheets, tools, etc.).
Product	An output or service that is a result of a process and is intended for delivery to a end user. A product is a work product that is delivered to the customer or end user.
Quality Management System	Management system to direct and control an organization with respect to quality.
Stakeholder	Group or individual affected by, or in some way accountable for, the outcome of an undertaking. Stakeholders can include project members, suppliers, customers, and end users. "Relevant stakeholder" designates a group or individual called out

Term	Definition
	in a plan to perform certain types of activities or to receive certain kinds of information.
Waiver	Written authorization to permanently not comply with a specified policy or requirement.
Work Product	An artifact that is produced by the process. A work product needs not be engineered or part of the end product. Some examples of work products are files, documents, processes, specifications, or parts of a deliverable product.

4.2 Acronyms

The following acronyms are used in this plan.

Acronym	Definition
APG	Aberdeen Proving Ground
C2SD	Command and Control Solutions Directorate
CCB	Change Control Board or Configuration Control Board
CD	Compact Disk
CM	Configuration Management
CM/DM	Configuration Management/Data Management
CMMI	Capability Maturity Model Integration
SCMP	Software Configuration Management Plan
COTS	Commercial Off-the-Shelf
CR	Change Request
DAR	Decision Analysis and Resolution
DMP	Data Management Plan
FBCB2	Force XXI Battle Command Brigade and Below
IEEE	Institute of Electrical and Electronic Engineers
IMS	Integrated Master Schedule
JCR	Joint Capability Release
MP	Measurement Plan
PA	Project Assurance
PAL	Process Asset Library
PCCB	Program Configuration Control Board
PL	Project Lead
PP	Project Plan
PPSS	Post Production Software Support
QA	Quality Assurance
RCCB	Requirements Configuration Control Board
SCCB	Software Configuration Control Board
SCMP	Software Configuration Management Plan
SCR	Software Change Reporting
SDP	Software Development Plan
SEI	Software Engineering Institute
SQA	Software Quality Assurance

Acronym	Definition
SQAP	Software Quality Program Plan
EPG	Engineering Process Group
SWADD	Software Architecture Design Document
TDP	Technical Data Package
TP	Training Plan
TPM	Technical Performance Measurement
WBS	Work Breakdown Structure