



**<Project Name>**

## **Software Quality Assurance (SQA) Plan**

**<Document Control Number>**

**Date: <Month Year>**

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## General Tailoring Guidelines

This document is a template for a Software Quality Assurance Plan intended for use by Code 303, Assurance Management Office (AMO) personnel as the basis for a mission-specific Software Quality Assurance Plan.

There are three general types of text format: Text in Black, Text in Blue with < >, Text in Blue with [ ] and Text underlined in blue.

### Text in Black

- Text in this style, black, is used for text that is equally applicable to all Software Quality Assurance Plans and will be included in the Software Quality Assurance Plan without modification. All document section headings are in the same category.

### Text in Blue with < >

- Text in this style, <blue>, is used to indicate that the text needs to be updated with project specific information such as the project name, persons name, persons title, date, revision #, Document Control Number, exc...

### Text in Blue with [ ]

- Text in this style, [blue], is used to indicate that there is additional instruction for tailoring text in any specific section. Delete this style, [blue], text before the document is finalized.

### Text underlined in Blue

- Text in this style, blue, is used to indicate active links. These links are usually to project or software assurance websites. The text color may vary depending on each persons personal computer settings/configuration.

All components of the table of contents will be addressed, but the level of detail is left up to the software quality personnel. The length and level of detail of the Software Quality Assurance Plan should be commensurate with the scope and complexity of the project.

Section headings may be added where necessary, but **existing headings should not be modified or deleted**. If a particular section is not applicable to the specific Software Quality Assurance Plan under production, that fact should be noted under the section heading, together with a brief explanation.

The following disclaimer appears on all pages: "Printed copies of this document are for REFERENCE PURPOSES ONLY! The only controlled copy of this document is located on-line at <<http://xxxxxxx>>. This disclaimer should be modified to contain the appropriate URL, but should not be removed.

Finally, in the Software Assurance Plan Template, this entire section ("General Tailoring Guidelines") will be deleted.

## Foreword

This document is a <Project Name> Project controlled document and adheres to IEEE 730-2002, the IEEE Standard for Software Quality Assurance Plans. Changes to this document require prior approval of the <Project Name> Project Configuration Control Board (CCB). Proposed changes shall be submitted to the <Project Name> Systems Assurance Manager (SAM), along with supportive material justifying the proposed change.

Questions or comments concerning this document should be addressed to the Assurance Management Office:

<Project Name>, <SAM Name>/Code 303  
Building <XX> Room <XXX>  
Mail Stop <XXX>  
Goddard Space Flight Center  
Greenbelt, Maryland 20771  
(301) <XXX-XXXX>

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DOCUMENT CHANGE RECORD

Sheet: 1 of 1

REV/ VER LEVEL	DESCRIPTION OF CHANGE	APPROVED BY	DATE APPRO VED
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## Table of Contents

1.0	Purpose .....	1
1.1	Scope .....	1
2.0	Reference Documents.....	2
3.0	Management.....	3
3.1	Management Organization .....	3
3.1.1	<Project Name> Project Office .....	3
3.1.2	Assurance Management Office.....	3
3.2	Tasks .....	5
3.2.1	Product Assessments .....	5
3.2.2	Process Assessments.....	5
3.3	Roles and Responsibility .....	7
3.3.1	SAM .....	7
3.3.2	Software Quality Personnel .....	7
3.3.3	Other OSSMA Personnel.....	8
3.4	Software Assurance Estimated Resources .....	9
4.0	Documentation .....	10
4.1	Purpose .....	10
4.2	Minimum Documentation Requirement .....	10
5.0	Standards, Practices, Conventions, and Metrics.....	11
5.1	Purpose .....	11
5.2	Software Quality Program .....	11
5.2.1	Standard Metrics.....	11
6.0	Software Reviews.....	13
6.1	Purpose .....	13
6.2	Minimum Software Reviews .....	13
7.0	Test.....	14

8.0	Problem Reporting and Corrective Action .....	14
9.0	Tools, Techniques and Methodologies .....	14
9.1	NASA GSFC Tools .....	14
9.2	Software Quality Tools .....	14
9.3	Project Tools.....	15
10.0	Media Control .....	15
11.0	Supplier Control.....	15
12.0	Record Collection, Maintenance, and Retention .....	16
13.0	<u>Training</u> .....	17
14.0	Risk Management.....	168
15.0	Glossary .....	179
16.0	<u>SQA Plan Change Procedure and History</u> .....	20

### List Of Tables

#### Table

Table 3-2	Software Assurance Resources .....	9
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## 1.0 Purpose

The purpose of this Software Quality Assurance (SQA) Plan is to establish the goals, processes, and responsibilities required to implement effective quality assurance functions for the <Project Name> project.

The <Project Name> Software Quality Assurance Plan provides the framework necessary to ensure a consistent approach to software quality assurance throughout the project life cycle. It defines the approach that will be used by the SAM and Software Quality (SQ) personnel to monitor and assess software development processes and products to provide objective insight into the maturity and quality of the software. The systematic monitoring of <Project Name> products, processes, and services will be evaluated to ensure they meet requirements and comply with National Aeronautics and Space Administration (NASA), Goddard Space Flight Center (GSFC), and <Project Name> policies, standards, and procedures, as well as applicable Institute of Electrical and Electronic Engineers (IEEE) standards.

### 1.1 Scope

This plan covers SQA activities throughout the <identify phases, e.g., formulation and implementation> phases of the <Project Name> mission. [Indicate whether or not SQA activities will continue through operations and maintenance of the system.]

[Enter a brief description of the project, the suppliers of the software, the software items covered by the plan, and their intended use.]



## 2.0 Reference Documents

The following documents were used or referenced in the development of this plan:

- NASA-STD-8719.13, NASA Software Safety Standard
- NASA-STD-8739.8, NASA Software Assurance Standard
- NPR 7150.2, NASA Software Engineering Requirements
- GPG 5100.3, Quality Assurance Letter of Delegation
- GPG 7120.4, Risk Management
- GPG 8700.4, Integrated Independent Reviews
- GPG 8700.6, Engineering Peer Reviews
- 303-PG-1060.1.1, Systems Assurance Manager Reporting
- 303-PG-1060.1.2, Assurance Management
- 303-PG-7120.2.1, Procedure for Developing and Implementing Software Quality Programs
- 300-PG-7120.2.2, Mission Assurance Guidelines (MAG) For Tailoring to the needs of GSFC Projects
- 303-WI-7120.2.2, Software Quality Assessment Process
- 303-WI-7120.2.1, Software Quality Reporting Process
- IEEE STD 730-2002, IEEE Standard for Software Quality Assurance Plans
- <Project Name> Project Surveillance Plan
- <Project Name> Project Plan
- <Project Name> System Implementation Plan (SIP)
- <Project> Software Management Plan (or Product Plan)
- <Project> Statement of Work (SOW)
- <Project> Configuration Management Plan (CMP)

[Update the reference document list to include a list of project documents used or referenced in the development of this plan. This includes policies, standards, procedures, guidelines, and other similar documents. Note: the last 6 documents listed are examples of project plans that you might include. Cite them only if they apply and/or add others specific to your project.]

### 3.0 Management

This section describes the management organizational structure, its roles and responsibilities, and the software quality tasks to be performed.

#### 3.1 Management Organization

<Project Name> efforts are supported by numerous entities, organizations and personnel (see <Project Name> internal website for a detailed organizational chart). Relevant entities/roles that are of interest and applicable to this SQA Plan and the software assurance effort are described at a high level below.

[Enter a copy of the project's management organizational chart or the project's website where this information can be found. This chart should reflect the project's interface with Code 303.]

##### 3.1.1 <Project Name> Project Office

The <Project Name> Project Office at NASA GSFC is responsible for management of project objectives within the guidelines and controls prescribed by NASA Headquarters, GSFC Management, and the <Project Name> Project Plan. The Project Manager (PM) from GSFC Code <enter Code> is specifically responsible for the success of the <Project Name> Project, including but not limited to cost, schedule, and quality.

##### 3.1.2 Assurance Management Office

The Assurance Management Office (AMO), Code 303, provides mission assurance support to NASA GSFC programs and projects (Reference 303-PG-1060.1.2). The AMO is comprised of civil service Systems Assurance Managers (SAMs), Quality Assurance Specialists (QASs), and Product Assurance Engineers (PAEs). The SAM assigned to a project is an AMO civil service representative responsible for supporting the Project Manager in the coordination of the definition and implementation of a Project Mission Assurance Program.

The SAM provides Project Management with visibility into the processes being used by the software development teams and the quality of the products being built. The SAM is matrixed to the <Project> project and maintains a level of independence from the project and the software developers. Risk escalation begins at the project level, and extends to the AMO and the Office of Systems Safety and Mission Assurance (OSSMA), Code 300.

In support of software quality assurance activities, the SAM has assigned and secured Software Quality personnel from the Mission Assurance Services Contract (MASC) to coordinate and conduct the SQ activities for the project and identify and document noncompliance issues. In the future and on an as needed basis, SQ personnel support from the Supplier Assurance Contract (SAC) and/or Defense Contract Management Agency (DCMA) may be utilized to support the SQ activities at remote (non-GSFC) locations.

Additional support personnel may also include OSSMA Safety and Reliability and NASA Independent Verification and Validation (IV&V) personnel from the NASA IV&V Facility in Fairmont, WV. For additional details on IV&V activities, reference the IV&V Memorandum of Agreement (MOA) and/or the IV&V Project Plan (IVVP). [Identify which IV&V agreements/plans are applicable to your project.]

[Enter any additional management organization and/or suppliers providing support to this project. Some examples of other management organizations include the Observatory provider, instrument provider, and/or ground data system providers.]

## 3.2 Tasks

This section summarizes the tasks (product and process assessments) to be performed during the development, operations, and maintenance of software. These tasks are selected based on the developer's Project Schedule, Software Management Plan (SMP) (and/or Software Maintenance Plan) and planned deliverables, contractual deliverables, and identified reviews. Reference 303-PG-7120.2.1, Procedure for Developing and Implementing Software Quality Programs, for additional information on the various process and product assessments. Reference 303-WI-7120.2.2, Software Quality Assessment Process, for specific instructions on conducting process and product assessments.

Reference the NASA GSFC Software Assurance web site, <http://sw-assurance.gsfc.nasa.gov> to retrieve software quality checklists and forms. This site is owned and maintained by the NASA GSFC Software Assurance Lead, located in the OSSMA.

### 3.2.1 Product Assessments

The following are typical product assessments that may be conducted by SQ personnel. See the SQ Activity Schedule for the planned assessments:

- Peer Review packages
- Document Reviews (see Section 4, Documentation)
- Software Development Folders
- Software Configuration Management (e.g., configuration baselines, configuration change requests, and change control records)
- Test results (e.g., requirements traceability matrix, test reports)

### 3.2.2 Process Assessments

The following are typical process assessments that may be conducted by SQ personnel. See the SQ Activity Schedule for the planned assessments:

- Project Planning
- Project Monitoring and Control
- Measurement and Analysis
- System/Subsystem Reviews
- Peer Reviews
- Requirements Management
- Software Configuration Management and Configuration Audits (FCA/PCA)
- Test Management (Verification & Validation)
- Software Problem Reporting and Corrective Action
- Risk Management
- Supplier Agreement Management

[Add or delete assessments from Sections 3.2.1 and 3.2.2 to establish a comprehensive list of processes and products you intend to monitor and/or assess.]

### 3.3 Roles and Responsibility

This section describes the roles and responsibilities for each assurance person assigned to the <Project Name> Project.

#### 3.3.1 SAM

Responsibilities include, but are not limited to:

- Secure and manage SQ personnel resource levels
- Ensure that SQ personnel have office space and the appropriate tools to conduct SQ activities
- Provide general guidance and direction to the SQ personnel responsible for conducting software quality activities and assessments
- Issue Letters of Delegation, MASC Service Orders, and SAC task orders to initiate software support services (as required)
- Provide AMO with weekly and quarterly software status (per 303-PG-1060.1.1, Systems Assurance Manager Reporting)
- Assist SQ personnel in the resolution of any noncompliances, issues and/or risks identified as a result of software quality activities
- Escalate any noncompliances to project management

#### 3.3.2 Software Quality Personnel

Responsibilities include, but are not limited to:

- Develop and maintain the project software quality assurance plan
- Generate and maintain a schedule of software quality assurance activities
- Conduct process and product assessments, as described within this plan, using objective criteria
- Interface with Safety, Reliability, and IV&V personnel on software assurance activities
- Identify and document noncompliances, observations, and risks from all software assurance related activities to the SAM
- Communicate results from assessments with relevant stakeholders
- Ensure resolution of noncompliances and escalate any issues that cannot be resolved within the project
- Identify lessons learned that could improve processes for future products
- Develop and maintain metrics

### 3.3.3 Other OSSMA Personnel

The Systems Safety and Reliability Office, Code 302, provides NASA GSFC projects with Safety and Reliability support. The following are the primary responsibilities for Safety and Reliability personnel in support of software assurance.

#### 3.3.3.1 Safety Personnel

Responsibilities include, but are not limited to:

- Provide system software safety expertise to the SQ personnel and/or project personnel, as required
- Assist in the assessment of the various software development efforts in terms of meeting applicable software safety standards and requirements
- Assist in the resolution of any software safety related issues, concerns, and/or risks identified throughout the project life cycle
- Assist in the review of various life cycle related artifacts as they pertain to system software safety

For additional support information, reference the project's System Safety Plan.

[Note: make sure this information is covered in the System Safety Plan.]

#### 3.3.3.2 Reliability Personnel

Responsibilities include, but are not limited to:

- Provide software reliability expertise to the SQ personnel and/or project personnel, as required. Assist in the assessment of the various software development efforts in terms of meeting applicable software reliability standards and requirements
- Assist in the resolution of any software reliability related issues, concerns, and/or risks identified throughout the life cycle
- Assist in the review of various life cycle related artifacts as they pertain to software reliability

### 3.4 Software Assurance Estimated Resources

Staffing to support software assurance (i.e., quality, safety, and reliability) activities must be balanced against various project characteristics and constraints, including cost, schedule, maturity level of the providers, criticality of the software being developed, return on investment, perceived risk, etc.

The staffing resource levels provided in the table below represent what has currently been agreed upon between Project Management and the SAM. For applicable IV & V resources, see the <Project Name> IV&V MOA or IVVP. As the project's efforts progress, these staffing resource levels may be revisited and updated as necessary to complete the activities/tasks described within this plan. [NOTE: Table 3-2 can be omitted from the SQAP so long as a reference to the information is provided and the resource information is maintained.]

**Table 3-2 Software Assurance Resources**

Support Personnel	FY<YY>	FY<YY>	FY<YY>
SQ Personnel	<x.x> FTE	<x.x> FTE	<x.x> FTE
Safety Personnel	<x.x> FTE	<x.x> FTE	<x.x> FTE
Reliability Personnel	<x.x> FTE	<x.x> FTE	<x.x> FTE
DCMA	<x.x> FTE	<x.x> FTE	<x.x> FTE
SAC	<x.x> FTE	<x.x> FTE	<x.x> FTE

x.x = FTE number (1.0, 0.5, 2.5, etc...)

YY = Year (04, 05, 06, 07, etc...)

[Enter the Resource Level by Full Time Equivalent (FTE) and Fiscal Year for the duration of the project life cycle. Example resource data is provided. Update the table to highlight all software assurance resources supporting the project.]

See Section 9 for a list of additional resources for performing process and product quality assurance activities.



## 4.0 Documentation

### 4.1 Purpose

This section identifies the minimum documentation governing the requirements, development, verification, validation, and maintenance of software that falls within the scope of this software quality plan. Each document below shall be assessed (reviewed) by SQ personnel.

[Include only those documents that exist for your program/project and that you have resources to actually review. Include in section 4.2 known documents from the Software Management Plan (SMP), Statement of Work (SOW), and Contract Deliverable Requirements List (CDRL).]

### 4.2 Minimum Documentation Requirement

- Quality Manual
- Software Assurance Plan
- Software Management Plan
- Configuration Management Plan
- Software Requirements Specification
- Risk Management Plan
- Software Safety Plan
- Test Plans (Verification and Validation)
- Software User's Guide
- Software Maintenance Plan
- Interface Control Document(s)
- Test Reports and Artifacts
- Software Version Description Document (VDD)
- Software Requirements Traceability Matrix
- Software Development Records
- Peer Review data packages

## 5.0 Standards, Practices, Conventions, and Metrics

### 5.1 Purpose

This section highlights the standards, practices, quality requirements, and metrics to be applied to ensure a successful software quality program.

### 5.2 Software Quality Program

Software Quality Programs at GSFC are governed by the NASA Software Assurance Policies, the NASA Software Assurance Standard, and the NASA Software Safety Standard. Together, these NASA documents establish a common framework for software processes and products throughout the life of the software. In addition, SQ personnel are governed by software quality procedures, work instructions, checklists, and forms developed and approved by the AMO. These practices and conventions are tools used to ensure a consistent and objective approach to software quality for all GSFC programs/projects. SQ personnel are also experienced in the Software Engineering Institute Capability Maturity Model Integration (SEI-CMMI) methodology and are applying generic and specific practices for Process and Product Quality Assurance (PPQA) in support of GSFC's Software Process Improvement Program.

For details on the specific procedures, work instructions, checklists, and forms used by SQ personnel, reference <http://sw-assurance.gsfc.nasa.gov>.

For details on the development standards for documentation, design, code, and test, reference <the developer's site>.

#### 5.2.1 Standard Metrics

The following standard metrics are the minimum planned metrics that will be collected, reported, and maintained in the area of software quality assurance:

- SQ effort and funds expended (Planned vs. Actual)
- Number of SQ Assessments (Planned vs. Actual)
- Number of SQ Assessment Findings or noncompliances (Open vs. Closed)
- Number of SQ Assessment Observations
- Number of Risks identified as a result of an SQ Assessment

Additional Project metrics may also be collected, reported, and maintained, as required by the SAM. Sample metrics include:

- Number of Peer Reviews (Planned vs. Actual)
- Number of Open vs. Closed Action Items from peer reviews
- Number of Open vs. Closed Software Problem Reports, with aging and trending over a specified time frame
- Number of Open vs. Closed IV&V issues (via the Facility's Project Issue Tracking System (PITS))

- Number of Open vs. Closed software Requests for Action (RFAs) or Action Items from project-level reviews (e.g., mission PDR or CDR)

## 6.0 Software Reviews

### 6.1 Purpose

This section identifies the number and type of system/subsystem reviews and engineering peer reviews that will be supported by the SQ Personnel. The Software Management Plan (SMP), the project milestone chart, the project's Engineering Peer Review Plan, and the SQ Personnel resource levels determine the reviews that are supported. [\[Reference only those project plans or schedules that form the basis of the review schedule.\]](#)

[\[Identify the location of the software review schedule.\]](#)

### 6.2 Minimum Software Reviews

For each review, SQ will assess the review products to assure that review packages are being developed according to the specified criteria, the review content is complete, accurate, and of sufficient detail, and Requests for Action are captured, reviewed, and tracked to closure. In addition, SQ will assess the processes used to conduct the reviews to determine if appropriate personnel are in attendance, correct information is presented, entry and exit criteria are met, and appropriate documents are identified for update.

The following software reviews may be assessed by SQ:

- System Concept Review (SCR)
- Software Specification Review (SSR)
- Preliminary Design Review (PDR)
- Critical Design Review (CDR)
- Test Readiness Review (TRR)
- Acceptance Review (AR)
- Operational Readiness Review (ORR)
- Mission Operations Review (MOR)
- Flight Operations Review (FOR)
- Peer Reviews (EPR) [\[Be specific. -- for example, code walkthroughs, design reviews, etc.\]](#)

See the SQ Activity Schedule for the planned reviews to be supported.

[\[List only those reviews you plan to attend and assess. Add/delete reviews and modify review titles, as appropriate.\]](#)

## 7.0 Test

SQ personnel will assure that the test management processes and products are being implemented per the Software Management Plan and /or Test Plan(s). This includes all types of testing of software system components as described in the test plan, specifically during integration testing (verification) and acceptance testing (validation).

SQ personnel will monitor testing efforts to assure that test schedules are adhered to and maintained to reflect an accurate progression of the testing activities. SQ will assure that tests are conducted using approved test procedures and appropriate test tools, and that test anomalies are identified, documented, addressed, and tracked to closure. In addition, SQ will assure that assumptions, constraints, and test results are accurately recorded to substantiate the requirements verification/validation status.

SQ personnel will review post-test execution related artifacts including test reports, test results, problem reports, updated requirements verification matrices, etc... [Add any additional SQ test activities (e.g., test witnessing)]

## 8.0 Problem Reporting and Corrective Action

SQ personnel generate, track, and trend assessment findings/nonconformances and observations in the centralized Software Quality Engineering Repository Database (SQERD), available via <http://sqerd/gsfsc.nasa.gov/>. Reference the SQ Assessment Process WI for details on tracking and trending of assessment findings and observations and the reporting escalation process.

[Specify how you communicate your assessment results and corrective action status to the SAM and the project. This is **critical** for PPQA.]

## 9.0 Tools, Techniques and Methodologies

SQ personnel will require access to the following: [Add/delete tools, as appropriate]

### 9.1 NASA GSFC Tools

- Automated Requirements Measurement (ARM) Tool
- NASA Lessons Learned Information System (LLIS)
- Goddard Directives Management System (GDMS)

### 9.2 Software Quality Tools

- Microsoft Office tools (i.e., Word, Excel, and PowerPoint)
- Access to the GSFC Software Assurance web site <http://sw-assurance.gsfsc.nasa.gov>
- Access to the Software Quality Engineer Reporting Database (SQERD)
- Access to the OSSMA internal server for SQA records

### 9.3 Project Tools

- <Project Name> Server
- <Project Name> Risk Management System
- Supplier Web sites and/or Software Development Life cycle Asset/Artifact(s) Repositories (as applicable)
- Supplier Software Problem Reporting Systems (remote access preferred)
- On-orbit Anomaly Reporting Systems for similar/heritage systems/missions

### 10.0 Media Control

SQ deliverables will be documented in one of the following Microsoft software applications: Word, Excel, or PowerPoint. Deliverables will be in soft copy, unless specified otherwise. See Section 12 for additional details on the collection and retention of key records.

Software Quality deliverables, work products, and data items shall be maintained in accordance with the OSSMA Software Quality Assurance Data Management Plan. This plan provides information on the data item, data category, owner, location, collection frequency, and data retention period.

### 11.0 Supplier Control

SQ personnel will conduct off-site surveillance activities at supplier sites <enter suppliers> on software development activities. [Specify the various suppliers and how SQ will monitor their software processes and products. Specify whether you intend to utilize insight, oversight, or a combination of both. Use the definitions for “insight” and “oversight”, if needed.]

SQ personnel will conduct a baseline assessment of the supplier(s) Quality Management Systems (QMS) to ensure that the supplier(s) have quality processes in place. This initial assessment will help to scope the level of effort and follow-on activities in the area of software quality assurance. [Note: this baseline assessment is recommended, but not a requirement.]

Process and product assessments <identify key assessments> will be conducted and any findings will be reported and tracked to resolution.

**Insight:** Surveillance mode requiring the monitoring of acquirer-identified metrics and contracted milestones. Insight is a continuum that can range from low intensity, such as reviewing quarterly reports, to high intensity, such as performing surveys and reviews.

**Oversight:** Surveillance mode that is in line with the supplier's processes. The acquirer retains and exercises the right to concur or nonconcur with the supplier's decisions. Nonconcurrency must be resolved before the supplier can proceed. Oversight is a continuum that can range from low intensity, such as acquirer concurrence in reviews (e.g., PDR, CDR), to high intensity oversight, in which the customer has day-to-day involvement in the supplier's decision-making process (e.g., software inspections).

[For previously developed software, this section shall state the methods to be used to ensure the suitability of the product for use with the software items covered by the SQAP.

For software that is to be developed, the supplier shall be required to prepare and implement an SQAP in accordance with this standard. Discuss the receipt and review of that plan and how SQ will use the deliverable.

Also state the methods to be employed to assure that the suppliers comply with the requirements of this standard. If software is to be developed under contract, then the procedures for contract review and update shall be described.]

## 12.0 Record Collection, Maintenance, and Retention

SQ personnel will maintain records that document assessments performed on the project. Maintaining these records will provide objective evidence and traceability of assessments performed throughout the project's life cycle. Example records include the process and product assessments reports, completed checklists, the SQ Activity Schedule, metrics, weekly status reports, etc. For more details on SQ records, their location, and data retention, reference the OSSMA Software Quality Assurance Data Management Plan.

## 13.0 Training

SQ personnel shall have fundamental knowledge in the following areas/disciplines through prior experience, training, or certification in methodologies, processes, and standards:

- Software Quality Assurance:
- Audits and Reviews
- Risk Management
- Configuration Management
- Software Safety
- Contracts/Contractor Surveillance
- CMMI
- ISO 9001
- Project-specific Training
- ISD Software Engineering Discussions

It is the responsibility of the SQ personnel to acquire the necessary skills or knowledge in each of the above disciplines. An SQ Training log has been prepared that specifies the type of training and/or on-the-job experience that has been completed, along with the source of the training, and the date of completion.

## 14.0 Risk Management

SQ personnel will assess the project's risk management process against the <Project Name> Risk Management Plan and GPG 7120.4. SQ participates in <weekly/monthly> risk management meetings and reports any software risks to the SAM and the project's Risk Manager.

[Provide any additional detail regarding review of risks and the SQ relationship with the risk review team. Provide link to project's risk management system, if applicable.]

## **15.0 Glossary**

Reference 303-PG-7120.2.1, Procedure for Developing and Implementing Software Quality Programs or the GSFC Software Assurance web site, <http://sw-assurance.gsfc.nasa.gov> for the Glossary and software quality acronyms.

## **16.0 SQA Plan Change Procedure and History**

SQ personnel are responsible for the maintenance of this plan. It is expected that this plan will be updated throughout the life cycle to reflect any changes in support levels and SQ activities. Proposed changes shall be submitted to the <Project Name> Systems Assurance Manager (SAM), along with supportive material justifying the proposed change. Changes to this document require prior approval of the <Project Name> Project CCB Chairperson.



### Appendix A – Abbreviations & Acronyms

Abbreviation/ Acronym	DEFINITION
AMO	Assurance Management Office
AR	Acceptance Review
ARM	Automated Requirements Management
CCB	Configuration Control Board
CDR	Critical Design Review
CDRL	Contract Deliverable Requirements List
CMMI	Capability Maturity Model Integration
CMP	Configuration Management Plan
DCMA	Defense Contract Management Agency
EPR	Engineering Peer Review
FCA	Functional Configuration Audit
FOR	Flight Operations Review
FTE	Full Time Equivalent
GDMS	Goddard Directives Management Systems
GDS	Ground Data System
GOV	Government
GPG	Goddard Procedures and Guidelines
GSFC	Goddard Space Flight Center
IEEE	Institute of Electrical and Electronic Engineers
IV&V	Independent Verification and Validation
LLIS	Lessons Learned Information System
MAG	Mission Assurance Guidelines
MASC	Mission Assurance Services Contract

MOA	Memorandum of Agreement
MOR	Mission Operations Review
NASA	National Aeronautics and Space Administration
NPD	NASA Policy Directive
NPG	NASA Program Guideline, NASA Policies and Guidelines
NRRS	NASA Record Retention Schedule
ORR	Operational Readiness Review
OSSMA	Office of Systems Safety and Mission Assurance
PAE	Product Assurance Engineer
PCA	Physical Configuration Audit
PDR	Preliminary Design Review
PG	Procedures and Guidelines
PM	Project Manager
PPQA	Process and Product Quality Assurance
QAS	Quality Assurance Specialist
QMS	Quality Management System
REV	Revision
SAC	Supplier Assurance Contract
SAM	Systems Assurance Manager
SCR	System Concept Review
SEI	Software Engineering Institute
SIP	System Implementation Plan
SMP	Software Management Plan
SOW	Statement Of Work
SQ	Software Quality
SQA	Software Quality Assurance

SQAP	Software Quality Assurance Plan
SSR	Software Specifications Review
STD	Standard
SW	Software
TRR	Test Readiness Review
VDD	Version Description Document
VER	Version
Vs.	Verses
WI	Work Instruction
WV	West Virginia