



USACE Design (DQC) Quality Control Plan Sample

Part 1: Project-Specific Design Quality Plan

Part 2: Company Quality Manual

Part 3: Submittal Forms

Contact:

Ed Caldeira

410-451-8006

PROJECT-SPECIFIC QUALITY PLAN

TABLE OF CONTENTS

The Project Quality Control Plan contents correspond with USACE / NAVFAC / AFCEA / NASA UFGS-01 45 00.00 10 (February 2010) Design Quality Control (DQC) Plan requirements.

Background Information	6
Project Name	6
Project Number	6
Project Location	6
Project Description	6
Project Scope	6
A. Design QC Organization	7
B. Names and Qualifications	8
C. Duties, Responsibilities, and Authority of Design QC Personnel	11
Quality Responsibilities	11
D. Outside Organizations	15
Qualification of Engineers, Architects, and Subcontractors	15
Qualification of Testing Laboratories	15
Purchase Order Approval	16
E. Appointment Letters	19
F. Submittals Procedures and Submittal Register	23
G. Testing Laboratory Information	24
Qualification of Testing Laboratories	24
H. Testing Plan and Log	26
Preparation of Inspection and Test Plan	26
I. Procedures for Completion of Design Changes and Corrections	28
Nonconformance Controls	28
Nonconformance Corrective Actions	29
Nonconformance Preventive Actions	30
J. Documentation Procedures	32
K. Quality Controlled Design Features of Work	34
Design Plan	34
Design Feature of Work	34
Design Reviews	35
L. Procedures for Performing the Three Phases of Control	40
Phase 1: Preparatory Phase	40
Phase 2: Initial Phase	41

Phase 3: Follow-up Phase 42
Feature of Work Completion Inspection 42
M. Personnel Matrix 49
N. Procedures for 100% Design Completion Inspection 50
 Company Design QC Inspection 50
 Pre-Final Customer Inspection 50
 Final Design Acceptance Customer Inspection 50
O. Training Procedures and Training Log 54
 Project Quality Training 54
P. Organization and Personnel Certifications 57
 Company Qualifications 57
 Personnel Certifications 57
Q. Attachments Error! Bookmark not defined.
R. Attachments Error! Bookmark not defined.
S. Additional Quality Control Requirements 60

Selected Pages

K. QUALITY CONTROLLED DESIGN FEATURES OF WORK

DESIGN PLAN

The Design Manager prepares a project-specific plan that includes:

- A listing of key project personnel, specific design responsibilities, and authority
- Appointment and the qualification of key design personnel to perform assigned design responsibilities.
- Who will verify and approve the design input specifications before design work begins
- A listing of company and customer stakeholders, reviews they will participate in, and how their input will be used to amended design requirements. The project organization chart Includes interfaces between various groups and personnel for producing and reviewing the design.
- Design output specifications, including required drawings, and engineering calculations
- Identification of who will perform design output verification activities and the criteria they will use.
- The sequence of design features of work and schedule

The Design Manager reviews the design process project plan with the customer and other interested parties. The customer approves the plan after any discrepancies are resolved and the plan is agreed upon. Design work may begin only after the customer approves the plan.

DESIGN FEATURE OF WORK

Each design feature of work is subject to the three phases of control and completion inspection described in the next subsection.

A listing of project features of work is included on the Quality Control Feature of Work List is included as an exhibit in this subsection.

The DQC Manager identifies each phase of design feature of work that requires separate quality controls. Each feature of work triggers a set of requirements for quality control inspections before, during and after work tasks.

and the authority to carry them out. A record of the Design Manager's appointment appears as in this plan as an exhibit in subsection E Appointment Letters.

DESIGN REVIEWS

DESIGN INPUT REQUIREMENTS REVIEW

The Design Manager ensures that the information in design inputs clearly defines customer expectations and that the necessary details are provided to set requirements for design.

The Design Manager obtains design specifications from the customer and conducts a customer design input review to ensure that:

- Customer design input requirements and specifications are complete
- Design process review milestones are specified when necessary
- Customer design output requirements and specifications are complete for review milestones as well as the completed design
- Customer design requirements and specifications are compatible with the relevant regulations,

Selected Pages

**[CompanyName]
Design Review Form**

Version April 25, 2012

Project ID	Project Name	Design Review Ref#	Date
[ProjectNumber]	[ProjectName]		
Review milestone:		Performing Department/Crew/Subcontractor:	

Reference design documents under review

Item #	Title or Description	Version / Issue Date

Review recommendations

Item#	Recommendation (reference supporting documents)	[CompanyName] Acceptance/ Rejection Signature / Date:	Customer Acceptance/ Rejection Signature / Date:
		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved <input type="checkbox"/> Approval not required
		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved <input type="checkbox"/> Approval not required
		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved <input type="checkbox"/> Approval not required
		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved <input type="checkbox"/> Approval not required

Features of work

N. PROCEDURES FOR 100% DESIGN COMPLETION INSPECTION

[CompanyName] will conduct a series of completion inspections near the end of the project to assure that the project is completed to specifications. The inspections consist of a punch-out inspection, pre-final inspection, and final acceptance inspection.

A Record of each of the inspections will be maintained on the Project Completion Inspection form. If punch items are discovered during the inspection, a record of the punch items and their correction will be maintained on the Punch List form. Project Completion Inspection and Punch List form exhibits are included as an exhibit in this subsection.

COMPANY DESIGN QC INSPECTION

Near the end of the project, or a milestone established in the Project Quality Inspection and Test Plan, the DQC Manager will inspect the completed project and verify conformance to contract specifications.

The DQC Manager records nonconforming items on a Final Punch List form.

The Design Engineer assigns a planned date by which the deficiencies will be corrected. The date may be assigned for all items or individual items as necessary. After corrections have been made, the Design Engineer verifies the completion of each item.

Selected Pages

QUALITY MANUAL

TABLE OF CONTENTS

1. Quality System Management and Responsibilities	11
1.1. Overview.....	11
1.2. [CompanyName] Quality Policy.....	11
1.3. Quality Duties, Responsibilities, and Authority.....	11
1.4. Quality System Performance Measures.....	14
1.5. Customer Satisfaction Performance Measures.....	14
1.6. Exceptions.....	14
2. Project Design Quality Control Plan	15
2.1. Overview.....	15
2.2. [CompanyName] Project License and Qualification Requirements.....	15
2.3. Project Personnel and Qualifications.....	16
2.4. Project Design Quality Control Plan.....	17
2.5. Identification of Quality Controlled Features of Work.....	17
2.6. Project Quality Inspection and Test Plan.....	17
2.7. Project Quality Communications Plan.....	17
2.8. Project Quality Training Plan.....	17
2.9. Customer Training On Operation And Maintenance.....	17
2.10. Project Records and Documentation Plan.....	18
2.11. Project Audit Plan.....	18
3. Contract Specifications	19
3.1. Overview.....	19
3.2. Contract Technical Specifications.....	19
3.3. Contract Drawings.....	19
3.4. Contract Submittals.....	19
3.5. Customer Submittal Approval.....	21
3.6. Contract Warranty.....	21
3.7. Contract Review and Approval.....	22
4. Design Control	23
4.1. Overview.....	23
4.2. Design Input Review.....	23
4.3. Project Design Design Quality Control Plan.....	23
4.4. Design Progress Reviews.....	24
4.5. Design Output Verification and Approval.....	24
5. Project-Specific Quality Standards	25
5.1. Overview.....	25
5.2. Regulatory Codes.....	25

5.3. Industry Quality Standards	25
5.4. Material and Equipment Specifications.....	25
5.5. Work Process Specifications.....	26
5.6. Controlled Material Identification and Traceability	26
5.7. Measuring Device Control and Calibration.....	27
5.8. [CompanyName] Quality Standards	27
5.9. Application of Multiple Sources of Specifications	27
6. Project Purchasing	28
6.1. Overview.....	28
6.2. Qualification of Suppliers, Subcontractors, and Departments	28
6.3. Quality Responsibilities of Key Subcontractor Personnel.....	29
6.4. Requirements for Subcontractor QC Plan	30
6.5. Subcontractor Quality Policy	30
6.6. Project Subcontractor and Supplier List	31
6.7. Purchase Order Requirements	31
6.8. Project Purchase Order Approvals.....	31
7. Process Controls.....	33
7.1. Overview.....	33
7.2. Project Startup and Quality Control Coordination Meeting	33
7.3. Preparatory Project Design Quality Control Plan Planning.....	33
7.4. Weekly Quality Planning and Coordination Meetings.....	34
7.5. Process Control Standards.....	34
7.6. Daily Quality Control Report.....	35
7.7. Monthly Quality Control Report.....	36
8. Inspections and Tests	37
8.1. Overview.....	37
8.2. Required Feature of Work Quality Inspections and Tests	37
8.3. Additional Inspection Requirements for Process Tasks.....	38
8.4. Inspection of Special Processes	38
8.5. Independent Measurement and Tests	39
8.6. Commissioning Functional Acceptance Tests.....	39
8.7. Hold Points for Customer Inspection.....	39
8.8. Quality Inspection and Test Specifications	39
8.9. Inspection And Test Acceptance Criteria.....	39
8.10. Inspection and Test Status.....	40
8.11. Independent Quality Assurance Inspections	40
8.12. Inspection and Test Records.....	40
8.13. Project Completion and Closeout Inspection	41
9. Nonconformances and Corrective Actions	43
9.1. Overview.....	43
9.2. Nonconformances	43
9.3. Corrective Actions	44

10. Preventive Actions	45
10.1. Overview.....	45
10.2. Identify Preventive Actions for Improvement	45
10.3. Train Preventive Actions for Improvement	45
11. Quality System Audits	47
11.1. Overview.....	47
11.2. Project Quality System Audit.....	47
11.3. Company-wide Quality System Audit	47
12. Record and Document Controls.....	48
12.1. Overview.....	48
12.2. Quality System Documents	48
12.3. Document Controls.....	48
12.4. Record Controls	49
13. Appendix.....	51
13.1. Definitions of Terms	51

Please keep in mind that quality materials provided by [CompanyName] are copyright registered. Please do not share them with other organizations, even if you do not charge a fee.

Selected Pages

CROSS REFERENCES

The [CompanyName] Quality System complies with US Army Corps of Engineers Quality Control Requirements “USACE/NAVFAC/AFCEA/NASA Quality Control Requirements UFGS-01 45 02 (November 2009)”.

USACE Requirements Section	Quality Manual Section
1.5 QC Organization	2.3.1 Project Organization Chart
1.6 Quality Control Plan	2 Project Design Quality Control Plan
1.7 QC Plan Meetings	2 Project Design Quality Control Plan
1.8 Coordination and Mutual Understanding Meeting	7.2 Project Startup and Quality Control Coordination Meeting
1.9 QC Meetings	7.4 Weekly Quality Planning and Coordination Meetings
1.10 Design Review and Documentation	3.7 Contract Review and Approval 4.2 Design Input Review
1.11 Three Phases of Control	7.3 Preparatory Project Design Quality Control Plan 8.2.2 Initial Work in process Inspection 8.2.2.3 Follow-up Work in Process Inspections
1.12 Submittal Review and Approval	3.4 Contract Submittals
1.13 Testing	6.2.1.1.1 Independent Laboratory Credential Requirements 8.12 Inspection and Test Records
1.14 QC Certifications	Daily Quality Control Report 7.6 Daily Quality Control Report 8.13 Project Completion and Closeout Inspection
1.15 Completion Inspections	8.13 Project Completion and Closeout Inspection
1.16 Training	2.9 Customer Training On Operation And Maintenance
1.17 Documentation	12 Record and Document Controls
1.18 Notification of Noncompliance	9 Nonconformances and Corrective Actions

7. PROCESS CONTROLS

HOW WORK IS CARRIED OUT

7.1. OVERVIEW

The design process plan defines how project work is to be done and approved for the overall project. The design process plan is communicated to all key personnel, engineers, architects, subcontractors and suppliers in a startup meeting. As the project proceeds, feature of work plans provide additional details of how each individual feature of work is carried out. Features of work planning meetings are used to communicate expectations of the feature of work plan to key personnel responsible for carrying out the feature of work.

7.2. PROJECT STARTUP AND QUALITY CONTROL COORDINATION MEETING

Prior to the commencement of work, the Project Design Manager holds a meeting to discuss and coordinate how project work will be performed and controlled. Key personnel from [CompanyName], subcontractors, and suppliers meet to review expectations for project quality results as well as quality assurance and quality control policies and procedures including:

- Key requirements of the project
- The Project Design Quality Control Plan
- Required quality inspections and tests
- The project submittal schedule
- Quality policies and heightened awareness of critical quality requirements
- Project organization chart and job responsibilities
- Methods of communication and contact information
- Location of project documents and records

7.3. PREPARATORY PROJECT DESIGN QUALITY CONTROL PLAN PLANNING

7.3.1. FEATURE OF WORK REQUIREMENTS REVIEW

In preparation for the start of an upcoming feature of work, the Design Engineer reviews an integrated and coordinated set of documents that collectively define quality requirements for the feature of work including:

- Objectives and acceptance criteria of the feature of work
- Quality standards that apply to the feature of work
- Work instructions, process steps, and product installation instructions that apply to the feature of work
- Shop drawings
- Submittals

List of Included Forms

- Project Personnel Qualification Form
- Subcontractor or Supplier Qualification Form
- DQC Manager Appointment Letter
- Project Design Manager Appointment Letter
- Design Engineer Appointment Letter
- Laboratory Qualification Form
- Quality Inspection and Test Plan
- Nonconformance Report
- Project Design Process Plan
- Design Review Form

- Quality Controlled Feature of Work List
- Feature of Work Inspection Form
- Punch List
- Project Completion Inspection Form
- Training Plan
- Training Log
- Project License and Qualifications
- Personnel Certifications and Licenses
- Project Organization Chart
- Design Manager Appointment Letter

- Project Quality Communications Plan
- Subcontractor Quality Communications Plan
- Point Of Contact List
- Project Quality Training Plan
- Project Quality Records Plan
- Project Submittals Schedule and Log
- Project Submittal Form
- Change Order Form
- Design Review Meeting Participant Form
- Project Regulatory Building Codes
- Controlled Materials Form
- Material Inspection and Receiving Report

- Test Equipment Calibration Plan and Log
 - Subcontractor and Supplier Certifications and Licenses
 - Subcontractor Quality Control Policy Requirements
 - Project Startup Meeting Form
 - Feature of Work Design Quality Control Plan
 - Feature of Work Quality Control Planning Meeting Form
 - Daily Production Report
 - Monthly Quality Control Report
-
- Inspection and Test Report
 - Nonconformance Report Control Log
 - Corrective Action Report
 - Training Record
 - Jobsite Quality Review Planning and Log Sheet
 - Quality System Audit Form
 - System Document Control Form
 - Project Records Control Form

Selected Pages

[CompanyName] Project Design Process Plan					
Version April 25, 2012					
Project ID	Project Name	Preparer		Date	
[ProjectNumber]	[ProjectName]				
Design Appointments					
Design Manager					
Designer(s)					
Design QC Reviewer					
Design Review Milestones					
	Ref#	Feature of Work	Output required for review	Scheduled date/milestone	Review participants
Design Input Review					
Work in Process Review:					
Work in Process Review:					
Final Design Review:					

Selected Pages



For More Information:

Contact: Ed Caldeira

410-451-8006

www.firsttimequality.com

EdC@FirstTimeQuality.com

For More Information, contact: Ed Caldeira • Caldeira Quality, LLC • First Time QualitySM

410-451-8006 • www.firsttimequality.com • EdC@FirstTimeQuality.com