



QC Plans

Planning For Success



Consolidated Support Facility – Beale AFB, CA

Sacramento Resident Office U.S. Army Corps of Engineers

(916) 649-0133 – Voice

(916) 923-5809 - Fax

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Basic steps to successful QC Planning

The contract requires that quality be guaranteed through a process called Contractor Quality Control (QC). This is a process that is controlled and maintained by the construction contractor throughout the life of the contract. The Government has a process called Quality Assurance (QA), which monitors the contractor's QC process to assure that it is working ("inspecting the inspectors").

The term "Quality" is defined as meeting the contract requirements as defined in the contract plans and specifications: nothing more, nothing less. The QC process provides the contractor a scheme whereby overall effort will be reduced to the contractor to manage and control processes of the contract to achieve quality and, if properly pursued, increase the contractor's "bottom line".

Many contractors have asked for a "checklist" to help them plan and start executing good QC at the beginning of a construction project. We have prepared a list of 9 things that should be done in order to get the QC off to a good start on a project and start other important processes, like contractor payment. These items are:

- Identify Features of Work
- Identify Contractor Personnel
- Identify Submittal Requirements
- Identify QC Requirements
- Identify Schedule (Pay) Activities
- Identify Contractor Responsibilities
- Identify Candidates for Training
- Identify Qualified Schedule Representative
- Identify Your Plan

A description of each of these items is given below, along with some tips on making it easier to do these items. Remember that these descriptions are based on what is required in many of our contracts, however it is possible that your contract may have some different requirements. Please be sure to read, understand, and comply with your specific contract requirements.

Identify Features of Work

Features of Work of a project are each individual task of a project. Features of Work include such activities as "grubbing and clearing", "underground piping", "exterior electrical work", and "project close-out" but these may not be sufficiently broken down for the QC process. Each of these activities has sub-categories such as "underground water", "underground sewer", "underground gas", etc. for the overall activity of the "underground piping" example. To properly manage quality on a project, each activity must be broken down to very specific activities that are called "features of work"

Be sure to consider the following:

1. Features of work require different Preparatory Inspections (see the contractor quality control clauses in the contract for Preparatory Inspections definition and requirements.)

2. Use the contract specifications organization by sections to help you identify features of work. Dig further into each specification section to find the separable features of work.
3. Think about work crews; if you require a new crew to do the work, you have a new feature of work.

The following questions should be asked:

"Do I need a different work crew for this item?" If you need different types of craftspersons, then there is more than one feature of work in the category. You need to break it down further.

"Will I need to use several different crews over the life of the contract to do this?" For example, you may have painting going on at different times in a project, often separated by noticeable time periods. Each of these activities is a separable and therefore become different features of work.

It is important that both the Contractor and the Government have a clear understanding of the exact type of work the Feature of Work represents.

Identify Contractor Personnel

Contractor and Subcontractor Staffing information is to be submitted 14 days from receipt of QCS Software.

Identify QC Requirements

QC Requirements include Tests, Schools, Installed and Transfer Property. QC Tests are defined in the Contract and are based on engineering and construction judgment as to the type and number of tests to be accomplished. Schools represent the training or instruction the contractor must provide the customer on equipment or systems. Installed and Transfer Property are those items of equipment incorporated into the design of the facility or property that changes hands during the construction process.

Identify Submittal Requirements

The Contractor is required to furnish a specified quality of construction, including materials and equipment to be incorporated in the work. Control of the quality of materials and equipment require timely review, testing, or other evaluation. All required submittals must be made in time to allow for evaluation, approval, procurement, and delivery prior to the preparatory control phase and before the item is needed in the construction process. The primary responsibility for the overall management and control of contractor submittals lies with the **Prime Contractor**.

Identify Schedule (Pay) Activities

Schedule (Pay) Activities shall include an appropriate level of detail. The schedule shall be the basis for measuring Contractor progress. Schedule activities will show the order in which the Contractor proposes to perform the work, the dates on which the Contractor

contemplates starting and completing salient features. Sum of pay activities must equal the contract amount and be grouped by Contract Line Item (CLIN). Sum of all CLIN's equals the contract amount. Each activity must include its relation to a specific Contractor or Subcontractor, Feature of Work, Phase, Project Area, and Work Category. Lack of an approved Schedule of Activities will result in an inability of the Contracting Officer to review or approve progress for the purposes of payment.

Identify Contractor Responsibilities

General. Contractors shall be made responsible for all activities necessary to manage, control, and document work so as to ensure compliance with the contract plans and specifications. The contractor's responsibility includes ensuring adequate quality control services are provided for work-accomplished on-and off-site by his/her organization, suppliers, subcontractors, technical laboratories and consultants. The work activities include safety, submittal management, and all other functions relating to the requirement for quality construction.

Staffing. It is the contractor's responsibility to carefully examine the contract requirements for CQC and provide personnel capable of complying with the CQC requirements of the contract clauses and technical provisions. The CQC staff must be of sufficient size and have the qualifications necessary to ensure contract compliance, whether the prime contractor, subcontractors or vendors, performs work. The CQC system manager will be an employee of the prime contractor and must report directly to the project superintendent or someone higher in the contractor's organization. The size and composition of the CQC organization may vary as the job progresses. At all times it should be compatible with the level of effort and capability required by the contract and construction schedule.

Quality Control Plans and Procedures. Contractors will be required to prepare a quality control plan for all projects except those excluded under the discretionary authority. Plans and procedures will include the features described in CEGS-01451.

Identify Candidates for Training

The Corps of Engineers has been requiring the **Contractors' Quality Control Manager** to complete the course entitled "**Construction Quality Management for Contractors**," since 1994. The certificate obtained for successfully completing the training is good for five years. As the certificates expire, those individuals will be required to retake the training. Once the Contractor has selected and designated a CQC System Manager the Resident Engineer will schedule and conduct hands-on training of the QCS Software specified in Contract Specification Section 01312. The CQC System Manager and staff will be required to read and become familiar with the Quality Control System (QCS) User Manual and Training Guide to be furnished by the Resident Engineer at the preconstruction conference.

Identify Qualified Schedule Representative

The Contractor shall designate an authorized representative who shall be responsible for preparation of all required schedule reports. Specific qualifications are listed in the project specifications. Once the representative has been selected and approved the Resident Engineer will schedule and conduct hands-on training on the use of the Standard Data Exchange of schedule information to the QCS Software.

Identify Your Plan

Obtaining quality construction is a combined responsibility of the construction contractor and the government. Their mutual goal must be a quality product conforming to the contract requirements. A cooperative and professional working relationship should be established in order to realize this common goal. The contract documents establish the quality required in a project to be constructed. Contracting officers are responsible for assuring the contract documents clearly define the quality of materials and workmanship required for a project and that construction contractors comply with the contract documents and produce the required product. Contractors are responsible for executing their Plan to schedule, control, and assure the end product quality.

The goal of the Contractor and the Corps of Engineers should be to provide a quality product to our customers on time and within budget. ER 1180-I-6, *Construction Quality Management*, requires the inclusion of CEGS-01451, *Contractor Quality Control*, in all contracts over \$1,000, 000. This specification section details how the contractor will control his construction activities and obtain the quality he contracted for. It requires him to submit a quality control (QC) plan detailing how he intends to comply with the contract. A good detailed QC plan will help us achieve quality construction and the Contractor QCS module will help accelerate and unify that plan.

The following parts of contractor QC plans need special attention during review and approval of the plan.

- a. The QC plan must include a QC organization description, which shows in detail exactly who is responsible for the quality of each type of work performed. This means the name and qualifications of all the individuals responsible must be listed. If a subcontractor is doing the mechanical work and the foreman of the subcontractor is responsible for the quality of that work, his name, qualifications and responsibilities must be included in the plan. This allows the QA representative to know who is responsible and make sure he attends and is involved in the preparatory phase.
- b. The QC plan must contain a letter to the individual Quality Control Manager named in the plan. This letter outlines his duties and responsibilities and gives authority to halt work, which is not in compliance with contract requirements. An authorized official of the company must sign this letter. The QC manager will issue letters of direction to all other various QC representatives outlining duties, authorities and responsibilities and provide copies of the letters to the government.

- c. The QC plan must identify all control, verification and acceptance testing procedures for each specific test. It shall list the test name, specification paragraph number requiring test, feature of work to be tested, test frequency and the person responsible for each test. It is noted that if the contractor uses a commercial testing lab, the Corps must approve it. If the contractor intends to set up his own lab, then this must also be inspected and approved by the Corps.
- d. The QC plan must describe a procedure for tracking construction deficiencies from initial identification thru correction. It is noted that establishment of the procedures does no good unless the contractor is required to implement and maintain them.
- e. Procedures for reporting, to include forms, must be included in the QC plan. This should include as a minimum, forms for daily QC activities, preparatory and initial meetings, control testing, final inspections and subcontractor QC activities forms.
- f. The QC plan must also contain a list of definable features of work. There may be more than one definable feature of work in each section of the specifications. A definable feature of work is any task, which is separate and distinct from other tasks, has separate control requirements, or is identified by different trades or disciplines.
- g. The contractor must show how they plan to manage the submittals required by the contract. These QC procedures must show who is responsible for the review and approval of all submittals for the contractor, including those from subcontractors, offsite fabricators and suppliers. Note that the individual signing for the contractor is certifying that the submittal meets all contract requirements. If too many submittals sent to the government are not in compliance, then it is that individual who should be either retrained or replaced.

While these are not all of the items required to be in the contractors QC plan, they are problems noted during Design Construction Evaluations. The easiest way to prepare and review a contractors QC plan is to have a copy of the contract specification section 01451 available and check off each item specified after reviewing it to determine if it will aide the contractor in obtaining the quality specified. Obtaining quality construction is a joint government and contractor effort.