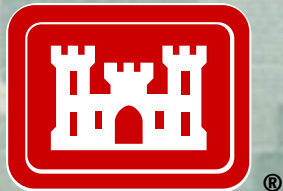


USACE Quality Assurance & Quality Control Processes

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SAME – Meet the Corps Day
March 3rd & 4th, 2020



US Army Corps of Engineers
BUILDING STRONG®



USACE Quality Assurance/Quality Control Processes



- 1. Construction Quality Management Responsibilities.**
- 2. Contractor Quality Control (QC) functions.**
- 3. Government Quality Assurance (QA) functions.**



1. Construction Quality Management Responsibilities

- **Quality construction is a dual-responsibility, and requires a combined effort, between Contractor and Government.**
 - **Contractor → Quality Control (QC).**
 - **Government → Quality Assurance (QA).**
- **Contractor Quality Control** – Contractor’s system to manage, control, and document activities to ensure compliance with the Contract.
- **Government Quality Assurance** – Government’s system to assure end product quality, by monitoring the contractor’s QC activities and performing independent testing and/or inspections of contract work.
- Both the QC and the QA systems are scalable to reflect the inspection requirements of the project and various stages of work.



2. Contractor Quality Control (CQC)

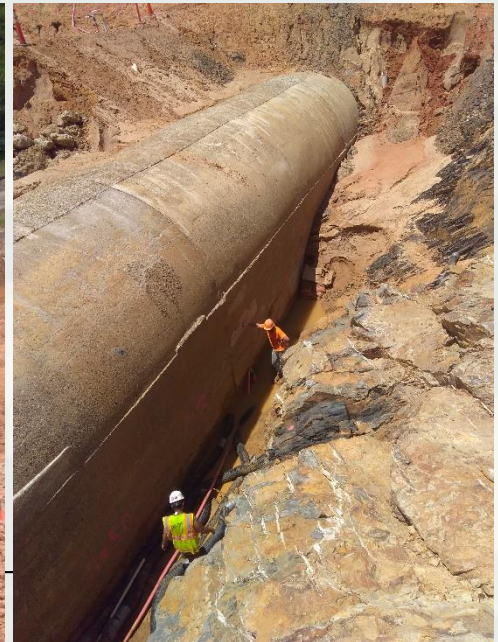
- **Contractor Quality Control (CQC) Plan** – The contractor is required to develop and submit to describe how they will manage quality on the contract. Contract specifications define the work plan minimum requirements.
 - **Job Site QC Plan** – Defines the contractor's on-site quality control organization, testing and procedures to be implemented to ensure construction complies with contract documents.
 - **Design QC Plan** – Defines the contractors organization and procedures for internally reviewing design documents for compliance with contract documents.
 - **Factory QC Plan** – Defines the contractor's organization, testing, and procedures to be implemented at the factory to ensure manufactured items comply with contract documents.



2. Contractor Quality Control (CQC) Cont.

Implementation of the contractor's quality control program occurs through a three phase inspection process for each feature of work

- **Preparatory Phase** – Meeting lead by KTR prior to starting new Feature of Work (FOW).
- **Initial Phase** – Observation at beginning of new FOW to verify Plan is correct and appropriate.
- **Follow-up Phase** – Daily check of process to determine if changes to Plan are needed.

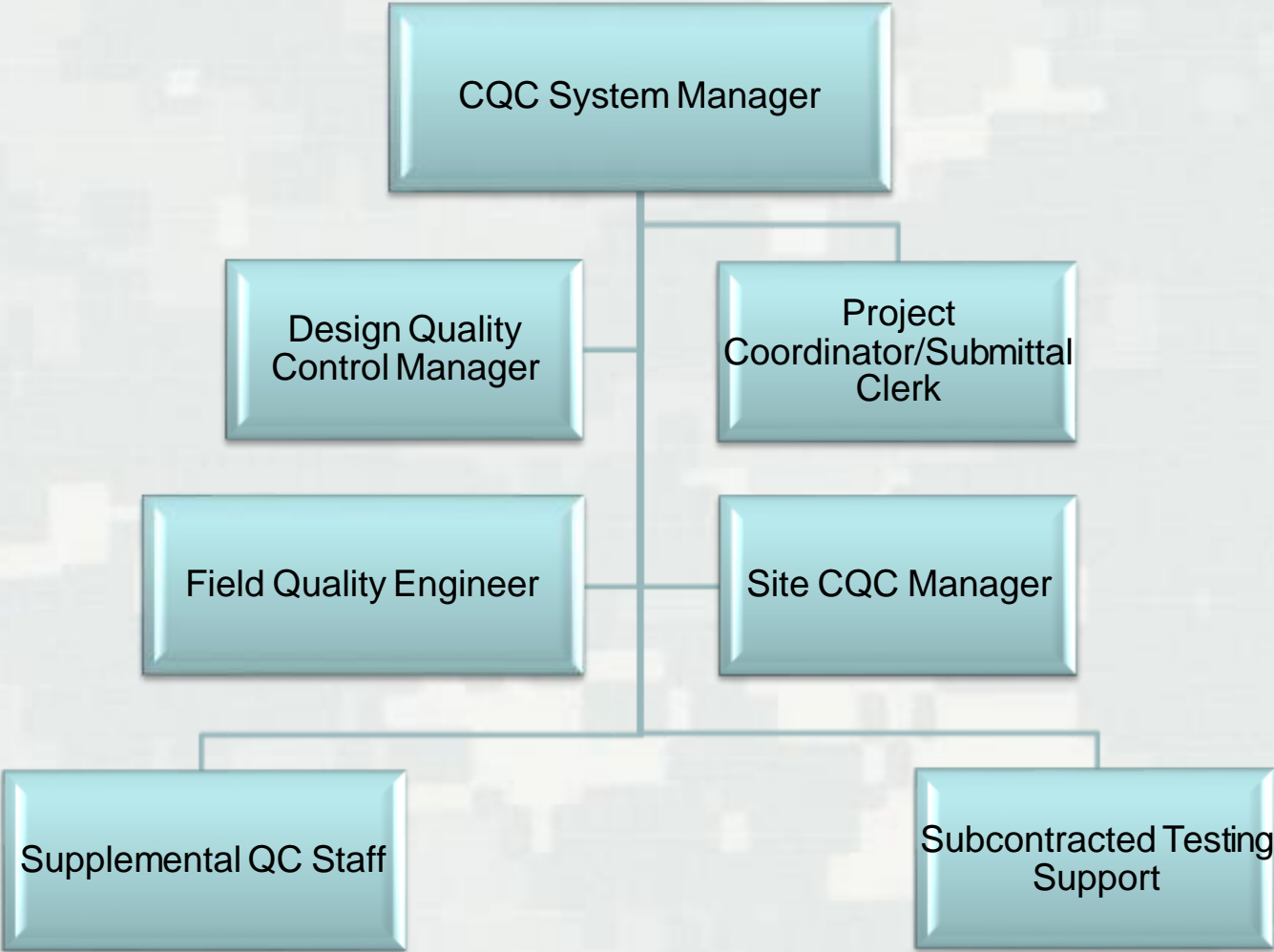


2. CQC Organization

- **Contractor Quality Control Systems Manager (CQCSM)** – Responsible for the overall management of Contractor Quality Control. Full authority to stop work until corrections are made.
- Additional CQC Personnel employed by the prime contractor required to assist the CQCSM executing quality control.
 - Design Quality Control Manager
 - Certified Weld Inspector
 - Submittal Clerk
 - Electrical Engineer
 - Mechanical Engineer
- Additional CQC Personnel subcontracted by the prime contractor to assist the CQCSM in executing testing requirements.
 - Testing Laboratories
 - Non-Destructive Testing (NDT) Technicians
 - CWI's



2. Example of Contractor's Quality Control Organization



3. Government Quality Assurance

- **QA activities start prior to contract award and include:**
 - Design reviews
 - BCOES Reviews
 - Quality Assurance Plan (QAP).
- **QA Testing** – Generally 5% of the frequency of the CQC tests.
- **QA Observance of CQC Tests** – Generally 10% of CQC.

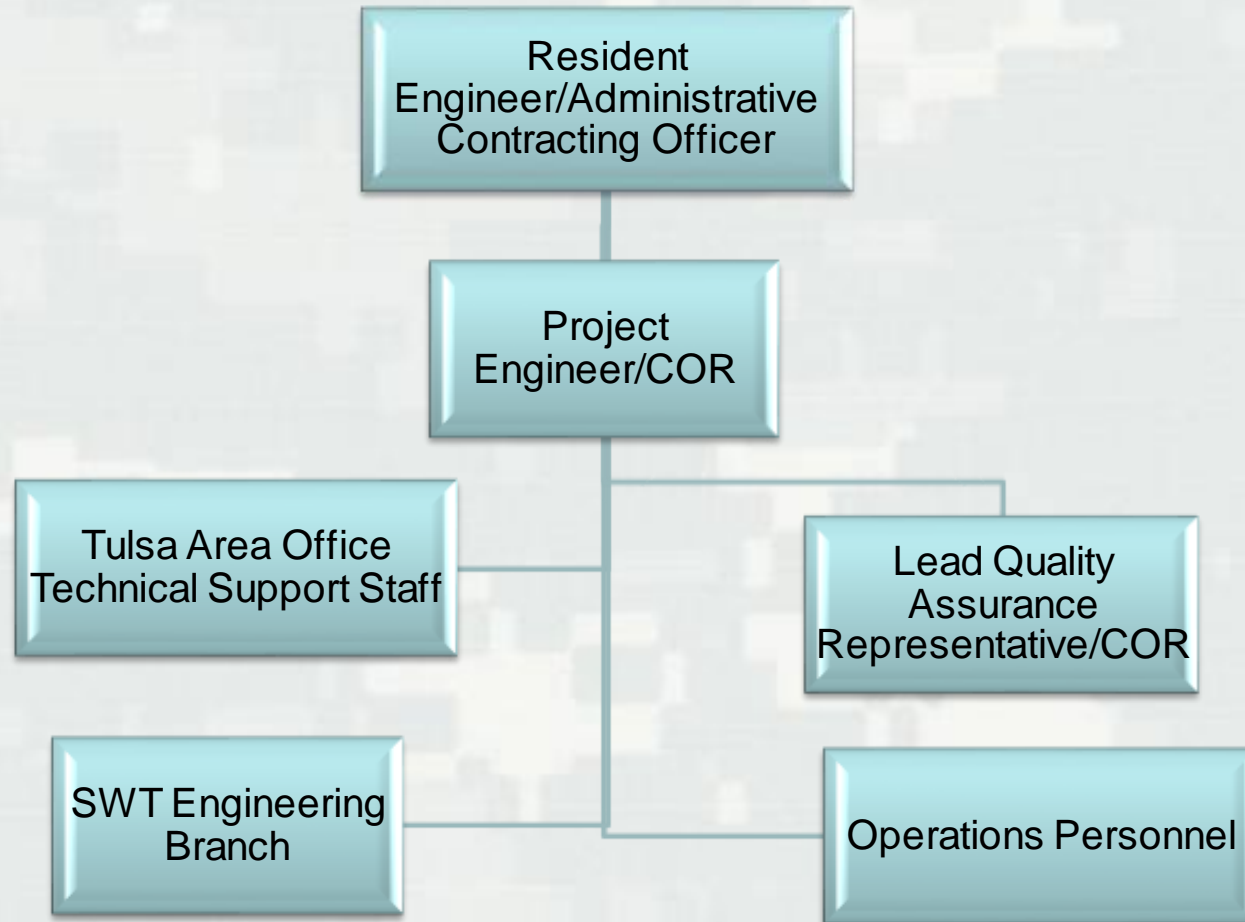


3. Implementation of Quality Assurance

- QA activities prior to start of construction:
 - Review of preconstruction submittals including product data, shop drawings, work plans, qualifications, samples, etc.
 - Holding a meeting of mutual understanding on quality with the contractor's quality control staff to ensure both parties have the same expectations on how quality will be managed on the project.
- QA activities after start of construction:
 - Performing surveillance of the contractor's quality control program, performing inspections, participating in meetings and assisting in resolution of issues.
 - **Documentation, documentation, documentation!**



3. Example of Government's Quality Assurance Organization on Civil Works Projects



3. Government Quality Assurance Organization

- **Support from Operations Personnel**
 - Lake Office Rangers and Mechanics
 - knowledge of project
 - Know local contractors.
 - Operate GOV equipment
 - Operation Field Engineers
 - Assist on remote locations.
 - Support on issue resolution.



***OPs is the User \Customer on Civil Works Projects.**



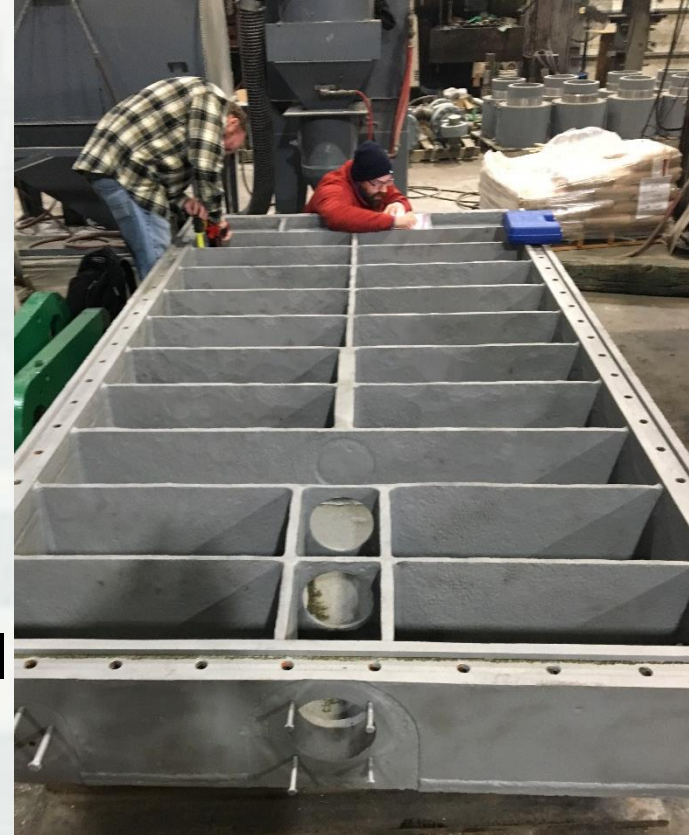
Quality Assurance Organization Cont.

- **Support from SWT Engineers (Engineering Branch and Operations)**
 - Co-review of shop drawings, product data, & work plans.
 - On site engineering support, if necessary.
- **Support from Area Office Technical Support Staff**
 - Co-review of schedule updates.
 - On site support as required.
 - Identifying and documenting lessons learned.



QA at Offsite Rehab Facilities

- Major components sent to machine shops for rehabilitation.
- Performance of “as-received” inspections and reports.
- Verification of “as-received” conditions through review of submitted reports & photos.
- Review of rehab scope with on site QC manager & project manager.
- Performed in-process QA inspections of all components.
- “Witness Point” Inspections.



On Site Quality Assurance

- **Inspect all rehabbed or new components upon arrival at site.**
- **Operation testing upon reassembly**
- **Witness 100% of contractor completed measurements. Witness torqueing of all major connection bolts.**
- **Operations Electrician performs Gate Operability and Capability Inspection (GOCI).**



Construction Quality Management Outputs

- **Submittal Review Comments**
- **Daily Inspection Reports (Both QA/QC)**
- **Deficiency Logs**
- **Testing Data**
- **Trip Reports**
- **Meeting Minutes**

Delivery of project that meets or exceeds the quality standards required by the contract.



Questions?



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