



Just the Facts: Quality Assurance, Quality Control and Non-Conformance Reports

Quality Control (QC) and Quality Assurance (QA) are two overlapping functions used by the Contractor and Caltrans to ensure that a structure's components are delivered in conformance with the contract. QC is the inspection and/or testing necessary to ensure that the product or service supplied meets the requirements specified in the contract. Quality Assurance is the inspection or testing necessary to ensure that the QC program is effective.

The contractor is responsible for QC. The Contractor performs the necessary inspection and testing, and then provides records documenting contract compliance for 100% of the work to Caltrans for review and approval.

In order to ensure that the QC process is effective in identifying and correcting any substandard product, Caltrans performs QA inspection and testing separate from QC. QA inspection and testing is typically performed at a lower frequency than QC. It is designed to provide oversight of the QC program, not the product itself. If substandard work or materials are detected by QA, it is indicative of a problem in the QC process that needs to be addressed.

Non-Conformance Reports (NCRs) are issued to identify the processes that must be revised to ensure the highest quality is maintained. NCR's documents the process or individual item that is not in compliance with the contract documents. NCRs are formally issued to the contractor with Non-Conformance Transmittals (NCT). At this time, the contractor is required to formally respond to the department with a Non-Conformance Proposed Resolution (NPR). In this document, the contractor lays out their plan for correcting the deficiency *and* the QC process that allowed the deficiency to go unnoticed. The Department then approves or rejects the contractor's proposed resolution. Once approved, QC and QA personnel verify that the

actions specified in the NPR are completed. Oftentimes, the QA inspection frequency of the process or item in question will be increased until the Department is confident that the quality issue has been eliminated.

The NCR is a routine construction contract management tool used to document a deficiency in the Quality Control process and provide an avenue for improvement of the process and resolution of the issue.

After NCR issues are resolved during the project, the NCR and resolution documents are filed in separate locations, a practice that has made matching them up for research purposes a laborious process. This is something Caltrans will fix in future projects.

For Further Reading

You can find many NCRs and their associated resolution documents here: <http://www.dot.ca.gov/NCRs/>. We are continuing to match up the remaining NCRs and their resolutions and will continue to update the database as necessary.

Because of the large amount of material fabricated off-site for the SAS contract, particularly at Zhenhua Port Machinery Company (ZPMC) in China, the majority of NCRs relate to that contract.