

JACKSONVILLE DISTRICT
QUALITY CONTROL & TECHNICAL REVIEW REQUIREMENTS FOR
PLANNING, ENGINEERING & DESIGN OF CIVIL WORKS PROJECTS
(REIMBURSEABLE)

1. PURPOSE. These guidelines set forth the requirements of quality control (QC) and independent technical review (ITR) for decision and implementation documents, which are produced by non-Federal entities in conjunction with Federally authorized civil works projects. The local sponsoring agency and the Jacksonville District are jointly responsible for ensuring the resolution of policy and technical issues and for ensuring that the review process is seamless and continuous in the development of products. This guidance should not be confused with the process of providing for Quality Assurance (QA) and Quality Control as defined for administration of construction activities. (See Appendix A for acronyms).

2. APPLICABILITY. This plan is applicable to the planning, engineering, real estate requirements, construction, and operation and maintenance of Federally funded Civil Works projects.

3. DEFINITIONS.

a. Policy Compliance Review. Policy compliance review is the review of decision documents that involves analysis of decision factors and assumptions used to determine the extent and nature of Federal interest, project cost sharing and cooperation requirements, and related issues. Policy compliance review ensures that there is uniform application of established policy and procedures nationwide and identifies policy issues that must be resolved in the absence of established criteria, guidance, regulations, laws, codes, principles and procedures or where judgment plays a substantial role. Policy compliance also ensures that the proposed action is consistent with the overall goals and objectives.

b. Independent Technical Review. Independent Technical review is a review by a qualified team not affiliated with the development of the product that confirms that an effective product has been developed that provides for the customer needs and the proper selection and application of established criteria, regulations, laws, codes, principles, and professional procedures. It also confirms the constructibility and effectiveness of the product and the utilization of clearly justified and valid assumptions that are in accordance with policy. ITR includes verifying:

- (1) Assumptions.
- (2) Methods, procedures, and material used in the analysis based on the level of analysis.
- (3) Alternatives evaluated.
- (4) The appropriateness of data used and the level of data obtained.
- (5) The reasonableness of the results including whether the product meets the users needs at the least cost and is consistent with law and existing public policy.

c. Decision Document. Any document, with associated National Environmental Policy Act (NEPA) documentation, prepared for the purpose of obtaining:

- (1) project implementation authorization or modification (re-authorization) and federal approval; or,
- (2) the commitment of Federal funds for project implementation; or,
- (3) approval to spend and/or receive money as a result of entering into agreements with the Federal Government.

d. **Implementation Document.** Any document prepared for purposes of executing a project in accordance with its authorization.

e. **Design Check.** A design check is a detailed evaluation of the general engineering analysis and the contract documents performed within technical disciplines as an extension of the design process prior to releasing the documents for review or construction.

f. **Quality Assurance (QA).** A process that provides assurance of quality management and involves the verification of the quality control process.

g. **Quality Assurance Plan (QAP).** A written plan prepared by the Jacksonville District to provide the general policy and procedures for the execution of the quality assurance function.

h. **Quality Control (QC).** The process employed to ensure the performance of a task that meets the agreed-upon requirements of the user and appropriate laws, policies and technical criteria, on schedule and within budget.

i. **Quality Control Plan (QCP).** A written plan prepared by the local non-Federal agency for product/project or a program which describes the procedures that will be employed to ensure compliance with all user, technical and policy requirements.

j. **Quality Management Plan (QMP).** A design agency's plan stating quality control management practices and business processes to ensure quality.

4. QUALITY CONTROL PLANS

a. **General.** QCPs must be consistent with the agency's QMP. It is to be used by the production team and by the technical manager to manage technical quality aspects throughout product development. Individual QCPs should be developed as the first order of business upon project/product initiation. As part of normal study and project coordination, four copies of the QCPs should be submitted to the Jacksonville District office for review and approval.

b. **Purpose.** The purpose of the QCP is to ensure:

- (1) delivery of quality products meeting the agreed-upon requirements and the user needs, on schedule, and within budget;
- (2) compliance with policies and technical criteria;
- (3) clear lines of accountability during production; and
- (4) independent technical review performed consistent with these guidelines.

c. **Types of QCPs.** The following are other types of QCPs for the various programs.

(1) **Product/Project QCP.** This is the fundamental QCP described in detail in these guidelines and in HQUSACE guidance. Its requirements are described below. Other types of QCPs described below use this type as the standard against which each one is compared and are simplifications of this one. Product specific QCPs should be prepared for all projects except as noted below.

(2) **Generic QCP.** A generic QCP may be used for simple routine projects which are straight forward projects performed with a minimum of coordination and may include O&M, small standard facility designs, maintenance dredging, dikes in dredging spoil areas, minor erosion control projects, etc. Generic QCPs should be prepared at the earliest opportunity to be in place as projects are initiated. Requirements for generic QCPs will be similar to those for product specific but from a simpler, less complex standpoint, setting forth the schedule and a minimum of coordination information.

(3) Overall QCP (CW). An overall QCP should be prepared for projects that, due to their size or complexity, are divided into several products after the feasibility phase. These overall QCPs will be supplemented as necessary to address each of the individual products. Overall QCPs must provide the continuity necessary to bind all products together and reflect project decisions reached during the feasibility phase. QCP supplements should be consistent with the overall QCP and should address issues that pertain to the specific product.

e. QCP Requirements.

(1) In-house Work. QCPs for planning/design documents developed in-house will include, as a minimum:

(a) Project Data. Description of the project/product. Include a sketch showing the major features of the project.

(b) Schedule. A time-scale bar chart/critical path method (CPM), with key milestones, showing the sequence of events involved in carrying out specific planning and design tasks within the overall project schedule. Include **ITR checkpoint meetings with the Design team and other ITR** process milestones and activities, such as in-progress reviews and technical review conferences (TRC), including approximate time frames. The schedule should be updated periodically to reflect changes and current status.

(c) Criteria Deviations. Anticipated deviations from applicable guidance. (These may also be added later in the production process, when their need becomes evident.)

(d) Standing Meetings. Scheduled dates for expected meetings and critical checkpoints. For Civil Works these would include Reconnaissance Review Conferences (RRC), Alternative Formulation Briefings (AFB), Feasibility Review Conferences (FRC), Project Review Conference (PRC), General Design Conferences (GDC), Issue Resolution Conferences (IRC), etc.

(e) Technical Review Option. Discussion of the selected technical review alternative(s) and the rationale for the option(s) selected.

(f) Technical Review Team. Discussion of the functions and disciplines/specialists of the technical review team, which could include Federal team members, as appropriate. The names of review team members and review team leader should be included.

(g) Construction Cost Estimate Control. Discuss the organization's internal controls to keep design to construction cost limitation and ensure the accuracy and integrity of the construction cost estimate.

(h) Documentation. Describe briefly (or refer to the QMP) general documentation procedures to be used throughout the QC process (documentation of decisions, issues, and issue resolution) and specifically identify the documentation to be used during ITR process activities.

(i) Lessons Learned. Describe how applicable lessons learned from previous projects will be identified and incorporated into project/product design documents.

(2) Architect-Engineer Work. This subparagraph addresses additional QCP requirements for planning/design documents developed by A-Es. The QCP also contains the A-E's quality management plan for execution of the contract. The QCP should be submitted with the A-E fee proposal. It should describe the way in which the A-E will produce the deliverables and the steps that will be taken to control quality. In addition to the items listed in Par. 4.e.(1) above, the following items are also key components of the A-E's QCP. If not included in the A-E quality assurance plan, adequate discussion on each item and agreed efforts on quality control must be documented and assured:

(a) Management Philosophy. Discuss the organization's technical management philosophy relative to its commitment to quality. If the firm has undergone a peer review of its organization, practices and procedures, a statement should be made describing it. Give the date, who made the peer review, and a brief description of resulting changes.

(b) Management Approach. Define the specific management methodology to be followed during the performance of the work, including such aspects as: documentation management and control, communications, design coordination procedures, checking, and managerial continuity and flexibility.

(c) Management Structure. Delineate the organizational composition of the A-E firm to clearly show the interrelationship of management and the design team components, including all consultants. Include an organization chart to identify by name the key design and review team members, and show their specific responsibilities related to the project. Assure responsibility of individuals toward product quality is clearly assigned.

(d) Design Tools. Describe the design tools by discipline that will be used in execution of the contract, such as CADD, MCACES, computer application programs, etc.

(e) Scheduling. Same as Par. 4.e.(1)(b) above. In addition, show the sequence of events involved in carrying out specific tasks within the specified period of service. Clearly show the design review and correction periods scheduled prior to submittals.

(f) Cost Control. Describe how project costs for products will be monitored and controlled.

(g) Construction Cost Estimate Control. Same as Par. 5.e.(1)(g) above. Also, indicate how construction cost information will be handled and communicated.

(h) Communications. Discuss how clear and accurate communications are to be achieved within the organization, and outside the organization. Indicate how modifications will be coordinated and documented.

f. Updates. The QCPs will be updated **on a timely basis** when significant changes occur impacting the agreed upon QC process such as schedule changes, review method, and review team.

g. Approvals. All QCPs for in-house work (CW) will be submitted to the Jacksonville District for review and approval. QCPs for A-E work will be reviewed and approved by the agency administering the A-E contract.

5. INDEPENDENT TECHNICAL REVIEW

a. General. ITR is an integral part of project development **and will be an on-going process throughout design**. The local sponsor will be responsible for performing an independent technical review of all decision and implementation documents. It is essential that the review strategy be developed early in the product development and incorporated into the QCPs for all project phases. **Many critical decision points are reached within the design process that should receive the concurrence of the ITR team at the time they are made rather than waiting until completion of the design. These checkpoint meetings are key components of the quality control process and Project Engineers will ensure that they are included in the QCP schedule. In addition, the PE will ensure that the ITR team is furnished copies of correspondence on design issues.** The ITR does not replace the normal in-house reviews customarily performed by each office, such as planning/design checks, BCOE, peer reviews, clean-up reviews, etc. These checks will be the responsibility of the in-house production team or the A-E and will be performed prior to releasing the documents for ITR.

b. ITR Execution.

(1) In-house Work. ITRs for in-house work will be conducted in accordance with the following guidelines:

(a) ITR team members will have knowledge, skills, and experience to perform the review functions task. The technical qualifications of each member should be commensurate with the level of risk (public safety and economic) associated with non-performance of the project, complexity of the project, user satisfaction or public visibility of the project.

(b) ITR team members will not be members of the development team. The technical review team members will be independent from the development of the project/product.

(c) ITR may be conducted within the agency's office, by another agency(s), in centers of expertise, or by a contract team or consultant. Use of USACE experts in selected technical review teams will be at the discretion of the sponsoring agency and by mutual agreement.

(d) ITR team will confirm that proper criteria, regulations, laws, codes, principles, and professional procedures have been used.

(e) Technical review team will confirm the utilization of clearly justified and valid assumptions that are in accordance with policy.

(f) The ITR team will document comments and the resolution of legal, technical and policy review issues. Upon completion of the ITR for each project/product, the ITR team members **will meet and discuss all comments to ensure compatibility, eliminate repetitious comments and reach agreement on all comments**. The ITR team members will sign (to show agreement on all comment resolution) and the appropriate functional chief(s) will certify the review. An example of a certification document for in-house work is provided as Appendix B.

(g) The Office of Counsel, Jacksonville District, shall review all decision and implementation documents to determine whether they are in compliance with applicable laws and regulations. In the event they are determined to be, a legal sufficiency certification shall be issued (See Appendix B). In the event legal deficiencies are noted, they shall be documented in writing.

(2) Architect-Engineer Work. A-E's will be held accountable for the quality of their work, including documented ITRs and ITR certifications. ITR certifications should be certified by one of the firm principals or authorized representative (see Appendix C) and by the sponsoring agency's appropriate functional chief(s). In A-E contracts, the QC is a shared process between the A-E and the sponsor. The following review actions should take place, in addition to internal design checks and the BCOE review:

(a) ITR. This review will be the responsibility of the A-E. It is similar to the ITR for in-house work, except that the sponsor will retain those portions of the review dealing with criteria, laws, etc. (see Par. 5.b.2(b)). The A-E's ITR should be performed by a qualified team not affiliated with the development of the product.

(b) Quality Assurance. The Corps of Engineers will perform quality assurance reviews of all A-E work to confirm that proper criteria, regulations, laws, codes, principles, and professional procedures have been used. This should confirm the utilization of clearly justified and valid assumptions that are in accordance with policy. It should also assure resolution of legal, technical and policy review issues. This is the same as described for in-house ITR in Par. 5.b.(1)(d) thru (f).

f. ITR Exceptions. Low risk, simple projects/products that, in the opinion of the sponsor and Corps of Engineers, do not require formal ITR as described above, may be reviewed by other appropriate resources as presented in the QCP and concurred in by USACE in advance.

6. Policy Issues. During product development, policy questions and problems will be discussed with the USACE as soon as they surface. When issues cannot be resolved at the Jacksonville District level, the District(as facilitator) will jointly elevate such issues to USACE Division office for resolution.

RICHARD E. BONNER, P.E.
Deputy District Engineer for
Project Management

APPENDIX A
ACRONYMS

A-E	Architect-Engineer
AFB	Alternative Formulation Briefing
ASA(CW)	Assistant Secretary of the Army (Civil Works)
BCOE	Biddability, Constructibility, Operability, and Environmental
CADD	Computer Assisted Drafting and Design
CDF	Confined Disposal Facility
COE	Corps of Engineers
CECW-A	Corps of Engineers, Civil Works, Policy Division
CERE-A	Corps of Engineers, Real Estate Directorate, Acquisition Branch
CG	Commanding General
CPM	Critical Path Method
DM	Design Memorandum
DPR	Detailed Project Report
EC	Engineering Circular
E&D	Engineering and Design
EIS	Environmental Impact Statement
ER	Engineering Regulation
FCSA	Feasibility Cost Sharing Agreement
FDM	Feature Design Memorandum
FRC	Feasibility Review Conference
FONSI	Finding Of No Significant Impacts
GE	General Expense
GDC	General Design Conference
GI	General Investigation
GRR	General Reevaluation Report
HTRW	Hazardous, Toxic and Radioactive Waste
HQUSACE	Headquarters, U.S. Army Corps of Engineers
IRC	Issue Resolution Conference
ITR	Independent Technical Review
LCA	Local Cooperation Agreement
LRR	Limited Reevaluation Report
MCACES	Micro Computer Aided Cost Engineering System
MOA	Memorandum of Agreement
OMP	Operations Management Plan
O&M	Operation and Maintenance
PAS	Planning Assistance to States
PCA	Project Cooperation Agreement
PE	Project Engineer
PMP	Project Management Plan
PMR	Project Modification Report
PRC	Project Review Conference
PRP	Preliminary Restoration Plan
PSP	Project Study Plan
QA	Quality Assurance
QAP	Quality Assurance Plan
QC	Quality Control
QCP	Quality Control Plan
QMP	Quality Management Plan
REDM	Real Estate Design Memorandum
RPE	Review Project Engineer
RRC	Reconnaissance Review Conference
SAD	South Atlantic Division
SOP	Standard Operating Procedure
TRC	Technical Review Conference
USACE	U.S. Army Corps of Engineers

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW:

Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact, and resolution)

As noted above, all concerns resulting from independent technical review of the project have been mutually resolved and comments incorporated. The report and all associated documents required by the National Environmental Policy Act have been fully reviewed.

(Signature) _____ *(Date)* _____
Chief, (name/functional area)

CERTIFICATION OF LEGAL REVIEW:

The report for _____, including all associated documents required by the National Environmental Policy Act, has been fully reviewed by the Office of Counsel, Jacksonville District and is approved as legally sufficient.

(Signature) _____ *(Date)* _____
Office of Counsel, Jacksonville District

APPENDIX C
(Sample, for A-E work only)

TECHNICAL REVIEW CERTIFICATION
FOR

(Document type, i.e., P&S, DM, etc.)
(Project/product name and location)

Part I, Certification by A-E:

1. Reference: *(insert appropriate guidance document or name and date of approved QCP)*

2. The *(insert document type)* for *(project/product)*, developed by *(A-E firm)* has/have been reviewed and coordinated for technical quality by *(A-E firm/consultant/government agency)*. Comments were provided and all parties are in agreement on the appropriate actions taken. Any controversial issues have been mutually resolved and all appropriate review comments incorporated into the project/product. This certification is for the sole and limited purpose of documenting the completion of the ITR process

REVIEWED BY:

(Name/Specialty)

(Name/Specialty)

(Name/Specialty)

(Name/Specialty)
Technical Review Team Leader

CERTIFIED BY:

(Signature/date)
Principal or Authorized Representative/Title
(A-E Firm/Consultant)

(Signature/date)
Appropriate Functional Chief/Title
(Use only when Part II is not used)

Part II, Certification by COE (only for CW Documents):

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW:

Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impacts, and resolution)

As noted above, all concerns resulting from the independent technical review of this project have been considered. The report and all associated documents required by the National Environmental Policy Act have been fully reviewed.

(Signature)
Chief, (functional area)

(Date)

CERTIFICATION OF LEGAL REVIEW:

The report for _____, including all associated documents required by the National Environmental Policy Act, has been fully reviewed by the Office of Counsel, Jacksonville District and is approved as legally sufficient.

(Signature)
District Counsel

(Date)