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JACKSONVILLE DISTRICT
TECHNICAL REVIEW
STANDARD OPERATING PROCEDURES (SOP)

1. PURPOSE. This plan prescribes the implementation of procedures to accomplish independent technical reviews in the Jacksonville District. District responsibilities include an independent technical review (ITR) of decision and implementation documents which are produced by the district. The Districts, Division and HQUSACE 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 (QC) as defined for administration of construction activities. (See Appendix A for acronyms).

2. APPLICABILITY.

a. This plan is applicable to the planning, engineering, real estate requirements, construction, and operation and maintenance of Federal funded Civil Works**,** Military and Hazardous, Toxic and Radiological Waste (HTRW) projects. A list of documents to which this SOP applies is included in Appendix B.

b. Quality management activities for Support for Others work are typically specified or negotiated with the customer, and are not discussed herein.

c. Real Estate Supplements, Real Estate Design Memorandums (REDMs), or similar reports that are in support of civil works studies/projects document, are covered by this SOP. The actual real estate products used to develop such reports (e.g. appraisals, non-standard estate requests) and other reports, memoranda, and documents that are the responsibility of and prepared by Real Estate (e.g. deeds, outgrants, condemnation assemblies) are not covered by this SOP.

d. Operation and Maintenance funded documents that require a Project Study Plan (PSP) or a Project Management Plan (PMP) are covered by this SOP. In addition, O&M funded documents that are prepared by the Engineering element and for which Engineering has primary responsibility for quality control are also covered by this SOP (i.e., reservoir regulation manuals, periodic inspection reports, others). Other O&M documents used in support of operation and maintenance requirements and prepared by the Operations element (operational management plans, etc.) are not covered by this SOP.

e. Legal opinions, approvals, and other legal documents which are the responsibility of Counsel shall be reviewed and acted upon in accordance with guidance, procedures, and delegations provided by the HQUSACE Chief Counsel.

f. This SOP is not applicable to:

(1) Plans and specifications for routine maintenance dredging and shore protection renourishment projects estimated to cost less than $7.5 million.

(2) New work dredging projects and non-complex construction general projects (except CAP) estimated to cost less than $1.0 million.

(3) Plans and specifications for all CAP projects (except) Section 14) estimated to cost less than $750,000.

(4) Plans and specifications for Section 14 CAP projects estimated to cost less than $500,000.

(5) Quality assurance and quality control of construction contracts.

3. REFERENCES.

a. ER 1110-1-12 Engineering and Design Quality Management.

b. CECW-A Memorandum dated 14 April 1995, subject: Implementation of New Technical and Policy Review Procedures.

c. ER 1110-2-1150 Engineering and Design for Civil Works.

d. CESAD-ET-EE Memorandum dated 12 February 1997, subject: Quality Assurance of A-E Work.

e. ER 5-1-11 U.S Army Corps of Engineers Business Process.

4. 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 customers 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 Washington level approval or Division level approval, as delegated, 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 other agencies or entities.

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 Division 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 customer and appropriate laws, policies and technical criteria, on schedule and within budget.

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

j. Quality Management Plan (QMP). A District plan stating quality control management practices and business processes to ensure quality.

k. Functional Chiefs. For purposes of these guidelines functional chiefs are the chiefs of Engineering, Planning, Construction-Operations, Real Estate and Office of Counsel elements.

5. QUALITY CONTROL PLANS

a. General. QCPs must be consistent with the District'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. The QCP is to be a part of the PSP or PMP, when these documents are required. However, separate QCPs must be prepared for products/projects not requiring a PSP or PMP. As part of normal study and project coordination, the QCPs should be coordinated with the project sponsor(s). Appendix B indicates which projects/products or program requires a QCP.

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

(1) delivery of quality products meeting the agreed-upon requirements and the customer 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 under the Civil Works Program except as noted below and for projects under the Military Construction (MILCON) and Hazardous, Toxic and Radiological Waste (HTRW) Programs whose anticipated construction cost is equal to or more than $5 million.

(2) Programmatic QCP (CW). A programmatic QCP may be used in lieu of an individual QCP for simple low risk projects. This may be the case for projects under the various authorities of the Continuing Authorities Program, for products in the Dam Safety Program, for the Bridge Inspection Program, and for simple routine projects upon mutual agreement between the District and the

Division. Programmatic QCPs should be prepared at the start of the fiscal year or as required under other guidance. Programmatic QCPs will be developed from a program management standpoint.

(3) 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. Projects under the MILCON and HTRW Programs whose anticipated construction cost is less than $5 million also fall under this category. Generic QCPs should be prepared at the earliest opportunity to be in place as projects are initiated and need not be submitted to the Division for review and approval. 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.

(4) 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 sponsor representatives, 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. 5.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. 5.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 to the Government.

(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. **Updates will be submitted in accordance with paragraph 8.a.(2).**

g. Approvals. All QCPs for in-house work (CW) will be submitted to CESAD-ET for review and approval. For submission requirements, refer to Par. 8, SUBMITTALS. QCPs for A-E work will be reviewed and approved by the district.

6. INDEPENDENT TECHNICAL REVIEW

a. General. ITR is an integral part of project development **and will be an on-going process throughout design**. Districts 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, customer 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 district, by another district(s), in centers of expertise, by teams or individuals throughout USACE, or by a contract team or consultant. Use of Division experts in selected technical review teams will be at the discretion of the District 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 C.

(g) The Office of Counsel 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 C). 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 (reference 3.d). ITR certifications should be certified by one of the firm principals or authorized representative (see Appendix D) and by the district's appropriate functional chief(s). In A-E contracts, the QC is a shared process between the A-E and the districts. 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 districts will retain those portions of the review dealing with criteria, laws, etc. (see Par. 6.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. Districts should perform a quality assurance 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. 6.b.(1)(d) – (f).

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

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

8. SUBMITTALS

a. Civil Works

(1) Copies of Decision and Implementation Documents will be submitted as follows:

(a) Division - three (3) copies of the draft and final decision and implementation documents, including associated ITR documentation to Directorate of Engineering and Technical Services, CESAD-ET, for quality assurance purposes.

(b) HQUSACE - Decision documents will be transmitted to CECW-AR and HQUSACE functional program managers in accordance with the requirements in Ref. 3.a.

(c) The above submittal requirements are not applicable to final feasibility reports nor draft project cooperation agreements. These should be forwarded to Division for processing, in accordance with established procedures.

(2) Six (6) copies of the QCPs and updates will be submitted directly to CESAD-ET upon initial development and during updates due to significant changes. QCPs should be submitted within 60 days of start of work in project/product. QCP updates (revised pages only) should be submitted to CESAD-ET within thirty (30) days of the revisions.

b. Military and HTRW

(2) One (1) copy of the QCPs and updates will be submitted directly to CESAD-ET upon initial development and during updates due to significant changes. QCPs should be submitted within 60 days of start of work in project/product. QCP updates (revised pages only) should be submitted to CESAD-ET within thirty (30) days of the revisions.

9. FUNDING

Project-specific QC activities performed by the functional elements (except those functional elements that normally charge labor to overhead) shall be funded by the appropriate project. All Division QA activities as well as any QC activities related to delegated policy compliance review are funded by appropriate Division funds.

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

APPENDIX B

QCP Requirements

The following is a generic list of projects/products produced in the Civil Works, MILCON and HTRW Programs. For most projects a QCP will be prepared, except those indicated as "NR" (NR = QCP not required). Specific details of QCP submittal requirements are addressed in the main body of these guidelines.

Quality Control Plans Requirements
1 of 3

DOCUMENT TYPES	**QCP TYPE**	
	INDIVIDUAL	**PROGRAM**
DECISION DOCUMENTS		
General Investigations - Reconnaissance Report	X	
General Investigations – Expedited Reconnaissance Report		X
General Investigations - Feasibility Report	X	
General Reevaluation Report	X	
Limited Reevaluation Report	X	
Post Authorization Change Report	X	
Major Rehabilitation Evaluation Report	X	
Dam Safety Evaluation Report	X	
Dredged Material Management Plan	X	
Section 933 – Beneficial Use of Dredged Material	X	
Section 934 – Extension to Existing Shore Protection Project	X	
PL 84-99 Rehabilitation Report	X	
Cost Allocation Report	X	
Real Estate Design Memorandum (REDM)	X	
IMPLEMENTATION DOCUMENTS		
Design Memorandum	X	
Feature Design Memorandum	X	
Plans & Specifications – Civil Works	X	
Plans & Specifications – MILCON & HTRW ≥ $5 million	X	
Plans & Specifications – MILCON & HTRW < $5 million		Generic
Design Analysis Report	X	

Quality Control Plans Requirements (cont.)
2 of 3

DOCUMENT TYPES	QCP TYPE	
	INDIVIDUAL	**PROGRAM**
CONTINUING AUTHORITIES PROGRAM		
Section 14 Planning & Design Analysis	X	
Section 103 DPR < $2.0 million		X
Section 103 DPR ≥ $2.0 million	X	
Section 107 DPR < $2.0 million		X
Section 107 DPR ≥ $2.0 million	X	
Section 111 DPR < $1.0 million		X
Section 111 DPR ≥ $1.0 million	X	
Section 204 Initial Appraisal < $1.0 million		X
Section 204 Initial Appraisal ≥ $1.0 million	X	
Section 204 DPR < $1.0 million		X
Section 204 DPR ≥ $1.0 million	X	
Section 205 DPR < $2.0 million		X
Section 205 DPR ≥ $2.0 million	X	
Section 208 DPR	X	
Section 1135 Project Modification Report < $2.0 million		X
Section 1135 Project Modification Report ≥ $2.0 million	X	
Section 1135 Preliminary Restoration Plan < $2.0 million		X
Section 1135 Preliminary Restoration Plan ≥ $2.0 million	X	
OTHER DOCUMENTS		
Planning Assistance to State Report	NR	
Floodplain Management Study Report	NR	
Hurricane Evacuation Studies	X	
PED Agreements	NR	
Environmental Assessment/FONSI	NR	
Environmental Impact Statement (when prepared as standalone)	X	
Feasibility Cost Sharing Agreement	NR	
Local/Project Cooperation Agreement & Supplements	NR	
Credit Agreement (Section 215)	NR	
PL 99-662 Reimbursements	NR	
MOA with Civil Works Sponsor	NR	

Quality Control Plans Requirements (cont.) 3 of 3		
DOCUMENT TYPES	**QCP TYPE**	
	INDIVIDUAL	**PROGRAM**
O&M REPORTS		
Reservoir Regulation Manual/Plan	NR	
Periodic Inspection Report		X
Instrumentation Updates		X
Dam Safety Emergency Action Plans		X
Water Quality Management Plan	NR	
O&M Manual	NR	
Water Supply Contract/Modifications	NR	
Master Plans & Amendments		X
Water Supply Reallocations	X	

APPENDIX C
(*Sample, for in-house work only*)

STATEMENT OF TECHNICAL AND LEGAL REVIEW

COMPLETION OF INDEPENDENT TECHNICAL REVIEW:

The District has completed the (*type of study*) of (*project name and location*). Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions was verified. This included review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. The independent technical review was accomplished by *(an independent district team/personnel from XX District/by AE contractor).*

(Signature) Technical Review Team Member/Specialty	*(Date)*
(Signature) Technical Review Team Member/Specialty	*(Date)*
(Signature) Technical Review Team Member/Specialty	*(Date)*
(Signature) Technical Review Team Member/Specialty	*(Date)*
(Signature) Technical Review Team Member/Specialty	*(Date)*
(Signature) Technical Review Team Leader/Specialty	*(Date)*

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, Planning Division

_____ *(Signature)* _____ _____ *(Date)* _____
Chief, Engineering Division

_____ *(Signature)* _____ _____ *(Date)* _____
Chief, Construction/Operations Division

_____ *(Signature)* _____ _____ *(Date)* _____
Chief, Real Estate Division

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)* _____
District Counsel

APPENDIX D
(*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)* _____ _____ *(Date)* _____
Chief, Planning Division

_____ *(Signature)* _____ _____ *(Date)* _____
Chief, Engineering Division

_____ *(Signature)* _____ _____ *(Date)* _____
Chief, Construction/Operations Division

_____ *(Signature)* _____ _____ *(Date)* _____
Chief, Real Estate Division

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)* _____
District Counsel

APPENDIX E

CESAJ-EN ITR and QA Procedures, Policies and Milestones

1. The purpose of this appendix is to define Engineering Division's ITR and QA procedures and policies and to establish specific milestones for ITR and QA. EN uses the Jacksonville District Technical Review SOP as its individual Division SOP.

2. These procedures and policies are for Civil Works products where Engineering Division (EN) has the technical lead and ER 1110-2-1150 addresses ITR and QA. These procedures and policies also conform to the U.S. Army Corps of Engineers Business Process as defined in ER 5-1-11, dated 17 August 2001.

3. Other programmatic work for recurring routine maintenance dredging for navigation projects and renourishment for some Shore Protection Projects, may not require ITR. The BCO&E Certification process performs the District's QA/QC for these projects.

4. Other O&MRR&R Reports and Manuals for Periodic Inspection, Reservoir Regulation, Dam Safety, etc… will be addressed separately by the responsible functional element. For example, the ITR team and process for Periodic Inspection are defined in ER 1110-2-100.

Independent Technical Review (ITR)

1. The following rules and procedures are to be followed regardless of what district or sponsor element has the lead. These instructions apply to products for which Engineering Division provides the Technical Lead and includes Design Documentation Reports (DDRs), Engineering Documentation Reports (EDRs), sections and appendices of decision documents and Plans and Specifications (P&S).

A. It is the Project Manager's responsibility to insure that ITR is scheduled, budgeted, and accomplished. The PM is not a member of the ITR team.

B. ITR teams and RPE shall be formally assigned at the same time or very shortly after the Project Delivery Team (PDT) is established and documented in the QCP. ITR is continuous throughout the process of preparation of the product. It is the Project Engineer's responsibility to initiate and coordinate with the ITR team. The ITR Request Form is provided on page E-7.

C. The following milestones shall be added to District schedules, QCPs and PMPs. 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.
In addition to scheduled milestones, the PDT may request concurrence meetings. The results of TRCs and concurrence meetings shall be documented by MFR in the QCP.

1) Initiate ITR. The purpose of the Initiate ITR milestone is to provide initial funding and develop the scope for the ITR. The ITR Team and RPE will be assigned to the project. The PE and RPE will develop the initial ITR strategy. The strategy will address the types and format of information that will be provided for subsequent ITR TRCs. Initially, this is expected to be similar to the information developed for FY2001 A/E contracts requiring similar milestones.

2) 30 Percent Technical Review Conference w/ITR. The purpose of the 30 Percent TRC is for the ITR Team and the PDT to discuss the current project plan, project background, objectives, scope of field data investigations, schedules, costs, design options, major issues (including activities required by a previous phase ITR), problem areas, and the type of documents which must be prepared and the level of detail in those documents. The objective of the 30 Percent TRC will be oriented toward the design of the current project plan. The scope and schedule for the Value Engineering (VE) activities will also be developed and coordinated with the PDT. The completion activities and responsibilities shall be documented in the QCP and PMP. For DDRs, an evaluation of need to change the scope to EDR will be documented in the PMP.

3) 60 percent Technical Review Conference w/ITR. The purpose of the 60 percent TRC is for the ITR Team and the PDT to evaluate technical progress of the activities and responsibilities documented in the QCP and PMP and to perform the ITR reviews and Value Engineering. The QCP and PMP will be updated to include the remaining completion activities and responsibilities.

4) Final ITR and ITR Certification. The final product/document will be reviewed and after receipt of comments, the need for a TRC will be assessed. Upon resolution of all comments and issues, the document will receive ITR Certification. For P&S, the Final ITR and ITR Certification will occur after resolution of BCO&E comments.

2. PMPs shall include in the section or appendix on the QA/QC Plan, a listing of ITR key review points including Initiate ITR, 30 Percent TRC w/ITR, 60 Percent TRC w/ITR and Final ITR and Certification. The PMP will specifically include DDRs, EDRs, and P&S as products.

3. For products where EN provides the technical lead, including those documents that are prepared by contract or by sponsors, the above milestones shall be scheduled and held the same as a COE prepared document. A/E contractors or sponsors shall also perform ITR and documentation (which includes comments and responses) shall be maintained and provided in accordance with the above milestones. Knowledgeable and experienced personnel must perform policy, procedural and technical compliance ITR. If experienced personnel are not available to the A/E contractor or sponsor, then COE personnel must supplement the ITR team.

4. When Planning Division (PD) has the technical lead on preparation of a product (GRR, LRR, Feasibility Report, etc…), EN shall support the PD ITR effort by providing ITR team members to review the report and assure that the goals of the study or report are met. An EN RPE will also be assigned to coordinate and consolidate EN comments and responses.

5. The following outline provides SOP tasks. These tasks may be refined to meet specific project needs.

A. Initiate ITR

1) PE addresses need for ITR in accordance with District SOP.
2) PE submits ITR request form with FWI to EN-TI.
3) EN-TI assigns ITR RPE for project.
4) RPE reviews previous documents such as Feasibility/Decision Report, DDR, QCP, GRR, and PMP.
5) PE & RPE develop review strategy and develops/updates list of ITR team members.
6) PE updates QCP and provides to PM, PDT, RPE and ITR team
7) PM provides remaining funding and updates PMP, if needed.

B. ITR at 30% TRC

1) RPE and ITR team reviews 30% submittal.
2) RPE assembles comments and provides to PE.
3) RPE and ITR Team meet with PDT at 30% TRC.
4) RPE prepares ITR MFR. PE prepares 30 % TRC MFR with ITR MFR appended.
5) PE updates QCP and provides to PM, PDT, RPE and ITR team.
6) PM updates PMP, if needed.

C. ITR at 60% TRC

1) RPE and ITR team reviews 60% submittal.
2) RPE assembles comments and provides to PE.
3) PE and RPE determine need for TRC. If needed, ITR team meets with PDT at 60% TRC.

4) RPE prepares ITR MFR. PE prepares 60 % TRC MFR with ITR MFR appended.
5) PE updates QCP and provides to PM, PDT, RPE and ITR team.
6) PM updates PMP, if needed

D. Final ITR and ITR Certification. For DDRs and EDRs, the final submittal to the ITR team is scheduled to occur after the incorporation of peer review comments. ITR Certification is executed on the product after final ITR comments and/or issues have been addressed.

1) RPE and ITR team reviews final submittal.
2) RPE assembles comments and provides to PE.
3) PE and RPE determine need to conduct TRC. If conducted, meeting will be documented by MFR. MFR shall be appended to QCP.
4) PDT incorporates final ITR comments.
5) ITR Team and RPE certify product.
6) Division Chiefs sign ITR Certification.

E. Final ITR and ITR Certification. For P&S, the final ITR is initiated with the distribution of P&S for in-house review and completed with the submittal of 100 percent P&S and BCO&E Certification. ITR Certification is executed on the advertised set of P&S.

1) RPE provides draft ITR Distribution Memo to EN-DC.
2) EN-DC provides 90 percent P&S to each member of ITR Team.
3) EN-DC provides unannotated BCO&E comments to each member of ITR Team.
4) ITR Team attends BCO&E Review Conference (optional), completes review of 90% P&S and provides ITR comments after BCO&E Review Conference. In instances where previous ITR has been performed, few unresolved ITR issues and comments are expected.
5) PE and RPE determine need to meet with PDT.
6) PDT incorporates and/or addresses final ITR comments.
7) EN-DC provides copy of BCO&E certification and final P&S (with amendments) to ITR team.
8) ITR Team and RPE certify project.
9) Division Chiefs signature ITR Certification and RPE provides to EN-DC.

F. Final ITR and ITR Certification with ITR concurrent with BCO&E Review. The final ITR is initiated with the distribution of P&S for in-house review and completed with the submittal of BCO&E Certification. ITR Certification is executed on the certified (as amended) set of P&S.

1) RPE provides draft ITR Distribution Memo to EN-DC.
2) EN-DC provides 90 percent P&S to each member of the ITR Team.
3) ITR Team performs Initial ITR concurrent with BCO&E Review
4) EN-DC provides unannotated BCO&E comments to each member of the ITR Team.
5) ITR Team completes review and provides ITR comments.
6) PE and RPE determine need to meet with PDT.
7) PDT incorporates and/or addresses final ITR comments.
8) EN-DC provides copy of BCO&E certification and final P&S (with amendments) to ITR team.
9) ITR Team and RPE certify project.
10) Division Chiefs sign ITR Certification and RPE provides to EN-DC.

Quality Assurance (QA)

1. Quality Assurance (QA). QA is a process that provides assurance of quality management and involves the verification of the quality control process.

2. QA of all work will confirm that proper criteria, regulations, laws, codes, principles, and professional procedures have been used. This should also 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.

3. QA will specifically confirm the following. Additional quality management objectives may be needed to meet sponsor and/or other legal requirements.

- ❑ Does the project perform its authorized function and will it be a safe, functional, and constructible solution to the authorized project purpose?
- ❑ Does the design follow USACE engineering criteria and professional procedures? (If not, have proper waivers been obtained?)
- ❑ Are appropriate analyses and methods being used and do they conform to USACE policy, regulations, and principles?
- ❑ Are the basic design assumptions valid and in accordance with principles and practices?
- ❑ For the current phase of the project, is the engineering content sufficiently complete, and does it provide an adequate basis for the baseline cost estimate and possible cost growth issues?
- ❑ Has ITR been performed according to COE guidance and District Standard Operating Procedures and is the ITR documentation appropriate?

4. The amount of QA will vary depending on the size and complexity of the product. Documented QA is required because these engineering products that will be used to construct Federal projects and EN will perform EDC support and/or CO will administer the construction contract. The following guidelines will be used.

a. In-house EN Products prepared by COE team members. QA is provided by managerial checks and oversight of the peer review and ITR. No additional milestones are needed.

b. Engineering Products Prepared by AE for a COE PDT. To fulfill the District's QA requirements for AE prepared products, the PDT shall perform a QA review of the contractor prepared products. EN-T will provide a reviewer to the PDT to review for conformance to current policy and procedures and ITR as set forth in ER 1110-2-1150. QA will be concurrent with ITR. QA reviewer will be part of PDT. No additional milestones are needed.

c. For engineering products prepared by SFWMD or other Non-Federal project sponsor or outside agency. EN-T will provide a QA reviewer who will coordinate and document product QA. Additional District expertise may be used to review the results of engineering analyses and studies that may affect cost growth, project safety or the ability of the recommended plan to function in accordance with the requirements of the decision document. This QA review will confirm compliance with the above checklist. QA will be concurrent with ITR. QA reviewer will use information and documents prepared as part of ITR. QA reviewer should be part of PDT, if possible. Add 30 Percent QA Review, 60 Percent QA Review and Final QA Review milestones to District schedules.

d. For engineering products prepared by other District Divisions or prepared by AE for other District Divisions. EN-T will provide a QA reviewer who will coordinate and document product QA. Additional District expertise may be used to review the results of engineering analyses and studies that may affect cost growth, project safety or the ability of the recommended plan to function

in accordance with the requirements of the decision document. This QA review will confirm compliance with the above checklist. QA reviewer will be part of the PDT to insure product execution is seamless for Chief, Engineering Division approval. Add 30 Percent QA Review, 60 Percent QA Review and Final QA Review milestones to District schedules.

e. For engineering products prepared by others and that will be used in decision documents such as Feasibility Reports, PIRs, GRRs and PAC Reports. The District will use the above corresponding product development sequence to define the QA process needed to oversee those efforts.

5. QA activities and concurrence will be documented by a QA MFR. The interim QA MFR will be appended to the QCP and final QA will be appended to the ITR Certification.

Independent Technical Review

Request Form

Project Engineers are to provide the following information to EN-TI to request ITR's for In-House Products. This form shall be submitted to EN-TI near the time the Project Engineer is assigned.

PROJECT TITLE _____

_____

Date of Request: _____

TO: EN-TI

An Independent Technical Review is requested for the subject project prepared by In House personnel. The following information is provided to allow EN-TI to plan and administer the ITR.

FM: Project Engineer _____ **Org. Code/Ext**_____
Project Manager _____ **Org. Code/Ext**_____
EN-TI ITR Funded Work Item in the amount of $2000_____

PROJECT INFORMATION (one paragraph general SOW with project type):

_____
_____
_____
_____
_____
_____
_____

Required Submittals to EN-TI from PE (electronic or hard copy):	**Submitted Date**
PMP	_____
QCP	_____
EA (if not in Decision Report)	_____
Feasibility/Decision Report	_____
Permit(s)	_____
Relative Correspondence	_____
DDR, EDR or other supporting analysis	_____
I set of P&S for each ITR Team Member	_____

Review Schedule:	**FROM**	**TO**
Initiate ITR	_____	_____
30% Review Conference/ITR Review	_____	_____
60% Review Conference/ITR Review	_____	_____
Final ITR and ITR Certification	_____	_____