



**US Army Corps
of Engineers**®

South Pacific Division

**QUALITY MANAGEMENT PLAN
CESPD R 1110-1-8**

30 DECEMBER 2002

CESPD R 1110-1-8, SPD Quality Management Plan
Revisions dated December 30, 2002
Significant Changes since May 2000 version

General Changes:

Updates to reflect changes in policy
Reflect Division Restructuring since May 2000
Reflect USACE Business Process (ER 5-1-11)

Main Body:

Quality Management as integral part of PMBP (Para 5.3)
(Plan-Do-Check-Act Cycle)
Measuring Quality (Para 6.3)
Responsible Function Chief quality responsibilities (Para. 6.4)
District Quality Management Advocate (Para. 6.5)
Lessons Learned from QC Activities (Para. 6.16)
Design Review and Lessons Learned System (Paras. 6.19 and 7.5)

Appendix C (Planning Subplan):

Interdistrict Review of Decision Documents (Para. 9)
Certification of Cost Estimates in Decision Documents (Para. 14)
SPD Feasibility Phase Milestone System (Encl. 1)
SPD Milestone Conference Requirements (Encl. 2)
Policy Compliance Review Considerations (Encl. 3)

Appendix D (Engineering Subplan):

Initiation of PED Phase (Para. 6.9.1)
Design Build Contracts (Para. 6.11)
Certification of Cost Estimates for Decision Documents (Para. 6.10.4)
HTRW and CDQM (Encl. 3)
QM of Water Control Deviations (Encl. 6)

Appendix H (Programs Management Subplan):

Program Manager Role in DSTs

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CESPD R 1110-1-8

CESPD-MT
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CESPD Regulation
No. 1110-1-8

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QUALITY MANAGEMENT PLAN

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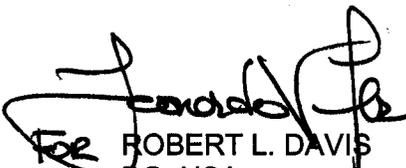
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**CESPD R 1110-1-8
QUALITY MANAGEMENT PLAN
30 DECEMBER 2002
EXECUTIVE SUMMARY**

This regulation provides the general policy and procedures for the execution of quality management activities in the South Pacific Division (CESPD), and in the districts and other field operating activities within the South Pacific Division. This plan applies to all technical activities of CESPD and its districts having responsibilities for: Civil Works, Military, HTRW, SFO, WFO and Real Estate products and projects from planning of these through their construction, operation and maintenance; programs and project management services and sub-products associated with product and project development; and, services and products developed by or at the request of CESPD Regional Boards and Committees.

It is the policy of CESPD and its districts to develop quality systems and implement quality management practices, including quality assurance (QA) and quality control (QC), that ensure that projects and technical products meet the agreed upon requirements of the customer and appropriate laws, policies and technical criteria, on schedule and within budget. Adherence to quality principles and established quality assurance and quality control practices is integral with the roles and responsibilities of all CESPD and district functions. Quality management practices described herein are an integral part of the Project Management Business Process and also serve to holistically support the Army Performance Improvement Criteria (APIC) excellence framework for performance management.

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- APP E - Real Estate Subplan
- APP F - Construction Subplan
- APP G - Operations Subplan
- APP H - Programs Management Subplan
- APP I - Model Quality Control Certification


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QUALITY MANAGEMENT PLAN

1. Purpose

This regulation provides the general policy and procedures for the execution of quality management activities in the South Pacific Division (CESPD), and in the districts and other field operating activities within the South Pacific Division.

2. Applicability

This plan applies to all technical activities of CESPD and its districts having responsibilities for: Civil Works, Military, HTRW, SFO, WFO and Real Estate products and projects from planning of these through their construction, operation and maintenance; programs and project management services and subproducts associated with product and project development; and, services and products developed by or at the request of CESPD Regional Boards and Committees. The plan shall be reviewed annually and updated as appropriate.

3. References

- 3.1. EC 1165-2-203, Technical Policy Compliance Review
- 3.2. ER 5-1-11, U.S. Army Corps of Engineers Business Process.
- 3.3. ER 1110-1-8159, DRCHECKS
- 3.4. Charter for District Support Teams
- 3.5. See subplans in appendices for references applicable to the quality management practices for project and/or products in specific programs or phases.
- 3.6. ISO 8042:1994, Quality management and quality assurance-Vocabulary.
- 3.7. ANSI/ISO/ASQC Q9001-1994, Quality Systems - Model for Quality Assurance in Design, Development, Production, Installation, and Servicing.

4. Definitions

- 4.1. *Acronyms.* A list of acronyms used in this plan is given in Appendix B.
- 4.2. *Customer.* The recipient of a product provided by the supplier.

4.3. *Contractor*. Supplier in a contractual situation.

4.4. *Design Checks and Other Internal Review Processes*. Detailed review and checking which must be carried out as routine management practices in each of the respective functional elements. Such review includes checking basic assumptions and calculations. These checks are performed by staff responsible for the work, such as supervisors and work leaders, and shall be performed prior to conduct of independent technical reviews.

4.5. *Decision Documents*. A decision document is any report prepared for the purpose of obtaining project authorization or modification, commitment of Federal funds for project implementation, and approval to spend/receive funds as a result of entering into agreements with other agencies or organizations including those to obtain Congressional authorization.

4.6. *District Support Teams (DSTs)*. District Support Teams were chartered by Reference 3.4 to support the districts in the execution of their programs. They are tasked to provide maximum support to the districts in delivering projects to its customers. They are composed of representatives from Planning, Engineering, Construction, Operations, Real Estate, Civil Works Management and Office of Counsel. There is one Civil Works DST for each district as well as one MILCON/ISO and one Environmental/ISO DST.

4.7. *Echelons*. Levels in the organizational hierarchy – district/laboratory/center, the MSC and HQUSACE.

4.8. *Engineering Quality Procedures (EQP)*. As part of a quality system specified by ISO 9000, all written procedures shall state a purpose, scope, references, definitions, responsibilities, description of process activities, and required records. The procedure identifies who does what, when, and where, and may describe how and why the activity is carried out.

4.9. *Functional Chiefs*. For the purposes of this plan, these are the chiefs of the major functional elements within CESPD, including Planning, Engineering, Construction, Operations, Real Estate, Office of Counsel and Program Management, and their counterparts at the Districts.

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

4.11. *Independent Technical Review (ITR)*. A review by a qualified person or team, not affiliated with the development of a project/product or the supervision of such, for the purpose of confirming the proper application of clearly established criteria, regulations, laws, codes, principles and professional procedures.

4.12. *Independent Technical Review Team (ITRT)*. An interdisciplinary group formed to perform the independent technical review. Same as "Review Team" in this Quality Management Plan.

4.13. *Management System*. What the organization does to manage its processes, or activities.

4.14. *Product*. Any deliverable, either by itself or in combination with other deliverables, that results in a project which is intended to produce a specific expected outcome or solution to a customer problem or need. A product can be tangible or intangible, or a combination thereof.

4.15. *Project Delivery Team*. An interdisciplinary group including the local sponsor/customer/user formed to develop a project.

4.16. *Program*. A group of projects, services or other activities that may be categorized by funding source, customer requirements or other common criteria for which resources are allocated and collectively managed.

4.17. *Program Management*. The component of the Project Management Business Process (PMBP) undertaken by all USACE echelons to manage programs. It consists of the development, justification, management, defense and execution of programs within available resources, in accordance with applicable laws, policies and regulations, and includes accountability and performance measurements.

4.18. *Project Management Business Process (PMBP)*. The fundamental USACE business process used to deliver quality projects which is described in ER 5-1-11.

4.19. *Project*. Any combination of work (products, services, etc.) intended to produce a specific expected outcome or solution to a customer problem or need. A project has the following characteristics: (1) Requires the application of one or more of the following professional practice and knowledge areas: planning, engineering, construction, operations and maintenance, real estate and environmental science; (2) Is performed by the Corps for a customer, either a specific entity or the Nation as a whole; and, (3) Has a defined scope, schedule, cost and criteria for performance measurement.

4.20. *Project Engineer*. Serves the PM role in the design district when the design district is not the geographic district for the project and the PM is in the geographic district.

4.21. *Project Management*. The application of knowledge, skills, tools and techniques to project activities to meet or exceed defined expectations.

4.22. *Project Management Plan (PMP)(PgMP for Programs)*. The PMP, developed in concert by the Project Delivery Team along with the local sponsor/customer/user, is a living document used to define expected outcomes and guide project (or program) execution and control. Primary uses of the PMP are to facilitate communication among participants, assign responsibilities, define assumptions and document decisions. Established baseline plans for schedule, scope, cost, safety and quality objectives against which performance can be measured and to adjust these as actual performance dictates.

4.23. *Project Manager*. The project manager is that person who is responsible for overall coordination and development of a project.

4.24. *Quality*. The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. Quality expectations are negotiated by the Project Delivery Team and are set forth in the Project Management Plan.

4.25. *Quality Assurance (QA)*. Quality assurance is an integrated system of management and quality improvement activities to provide adequate confidence in the effectiveness of quality control activities in the delivery of quality projects.

4.26. *Quality Control (QC)*. The operational techniques and activities employed to fulfill the agreed upon requirements of the customer and appropriate laws, regulations, policies and technical criteria for quality.

4.27. *Quality Control Certification*. A statement declaring that the quality control process conducted in support of project development has been satisfactorily concluded and that all technical issues that have been raised regarding the project have been resolved.

4.28. *Quality Control Plan (QCP)*. Document setting out the specific quality practices, resources and sequence of activities relevant to a product. It shall include the review team and its responsibilities, the schedule and costs for reviews, the agreed upon requirements of the customer, and the appropriate laws, regulations, policies and technical criteria for development of the study/product/project.

4.29. *Quality Assurance Plan (QAP)*. Document setting out the specific quality practices, resources and sequence of activities relevant to provide adequate confidence an entity will fulfill requirements for quality of a product.

4.30. *Quality Management Indicator (QMI) Report*. The QMI report is a performance based measurement systems which includes individual, generic, programmatic and supplemental QCPs as well as QCPs developed for A-E projects and A-E projects from design-build contracts. The QMI report shall be presented at each district's CMR. To support the data presented in the QMI report, each district shall also provide to CESPD a detailed breakdown by functional area showing specific projects requiring QCPs, date of initiation of project delivery process and the date the QCPs were approved.

4.31. *Quality Management (QM)*. All activities of the overall management function that determine the quality policy objectives and responsibilities, and implement them by means such as quality planning, quality control, quality assurance and quality improvement within the quality system.

4.32. *Quality Management Plan (QMP)*. Document setting out the specific quality practices, resources and sequence of activities relevant to all aspects of project development, including planning, engineering, real estate, construction-operations and programs and project management.

4.33. *Quality System (QS)*. The organizational structure, procedure, process and resources needed to implement quality management. (ISO 8402)

4.34. *Regional Boards and Committees.* Include Regional Management Board (RMB), Workload Management Committee, Acquisitions Strategy Board, USACE Business Process Technical Transition Team (T3), Program Review Board, O&M Steering Committee, Dam Safety Committee, Plant Replacement and Improvement Program (PRIP) Review Committee, SPD Advisory Panel for Technical Specialists, EEO Management Council, and Information Technology (IT) Council.

4.35. *Responsible Function Chief.* Functional chief with primary responsibility for the technical quality of a product as defined in function statements and the appendices to this QMP.

4.36. *Review Team.* An interdisciplinary group formed to perform the independent technical review. Same as "Independent Technical Review Team" in this QMP.

4.37. *Review Team Leader.* The individual responsible for coordinating all activities of the review team. Same as Independent Review Team leader in this QMP.

4.38. *Seamless Review.* In-progress reviews made by members of the review team during product preparation.

4.39. Support for Others (SFO). Projects for customers outside of the Department of Defense.

4.40. *Technical Products.* All deliverables are referred to as technical products, including real estate, decision and implementation documents, plans and specifications, and programs and project management documents, such as PCAs, PMPs and PED agreements, that include the integration of technical products from multiple functional elements. They include completed deliverables that are ready for transmission to other members of the project delivery team, outside of the element that performed the work.

4.41. *Technical Review.* Technical Review focuses on compliance with established policy, principles and procedures using clearly justified and valid assumptions. It includes the verification of assumptions, methods, procedures, and material used in analyses based on the level of complexity of the analysis. It verifies the alternatives evaluated, appropriateness of data used and level of data obtained, functionality of the project and verifies the reasonableness of the results including whether the project meets the customer's needs consistent with law and existing policy and engineering and scientific principles.

4.42. Technical Review Strategy Sessions (TRSS): The initial technical review strategy session forms the basis for a quality control plan for all major projects and is held early in the project development phase. All members of the project delivery (including representatives of the customer) and independent technical review teams as well as functional chiefs are required to participate in the initial TRSS.

4.43. *Total Army Quality (TAQ).* Similar to TQM (below), the application of quantitative methods and people to meet the needs of end users and to assess and improve all significant processes in the organization.

4.44. *Total Quality Management (TQM)*. The application of quantitative methods and people to meet the needs of end users and to assess and improve all significant processes in the organization.

4.45. *USACE Business Process*. The corporate management approach established for execution of all programs, projects and services within the Corps of Engineers.

4.46. *Value Engineering (VE)*. A function oriented, systematic team approach to balance performance and cost. Typical value engineering studies are performed under the direction of an experienced facilitator using a multi-discipline team, which breaks down the project into functional performance elements. Cost and benefits are assigned to each element and evaluated. Creative options are then sought when there is a mismatch between value and cost.

4.47. *Work for Others (WFO)*. Non-traditional projects within the Department of Defense.

5. Division Policy on Quality Management

5.1. *Strategic Vision*. The quality management (QM) principles outlined in this quality management plan support the three strategic goals of the CORPS Vision:

5.1.1. People: Be recognized for the technical and professional excellence of our world class workforce, functioning as teams delivering quality projects and services;

5.1.2. Process: Use the Project Management Business Process to operate as One Corps, regionally delivering quality goods and services; and,

5.1.3. Communication: Communicate effectively to build synergistic relationships that serve the nation.

5.2. *Quality Policy*. It is the policy of CESPD and its districts to develop quality systems and implement quality management practices, including quality assurance (QA) and quality control (QC), that ensure that projects and technical products meet the agreed upon requirements of the customer and appropriate laws, policies and technical criteria, on schedule and within budget. Adherence to quality principles and established quality assurance and quality control practices is integral with the roles and responsibilities of all CESPD and district functions. QA and QC practices outlined herein shall also be consistent with the USACE Business Process as well as with other quality management practices prescribed by USACE, including Total Quality Management (TQM), Total Army Quality (TAQ), Value Engineering (VE) and ISO 9000. Quality management practices described herein also serve to holistically support the Army Performance Improvement Criteria (APIC) excellence framework for performance management. General guidance on QA and QC responsibilities and practices is given below. Exceptions to the general guidance and guidance specific to the unique products and programs that are the primary responsibility of the Planning, Engineering, Real Estate, Construction, Operations and Programs and Project Management functions are given in Appendices C through H, respectively.

5.3. *Project Management Business Process.* Quality management is an integral part of the Project Management Business Process (PMBP) and is accomplished thru both horizontal teamwork (i.e. district project delivery teams, (SPD) District Support Teams and HQUSACE Division Support Teams) and vertical teamwork (District, Division and HQUSACE). A basic tenet of quality management is the Plan-Do-Check-Act cycle:

5.3.1. Plan for Quality

5.3.2. Work the plan – build quality in

5.3.3. Check for problems

5.3.4. Learn

5.3.5. Revise Procedures

5.3.6. Repeat the process

6. District Quality Control Responsibilities

6.1. *Objectives.* Districts shall be responsible for developing quality systems and following quality management practices and business procedures to ensure quality projects. This includes all interim products that are required for the development of a project, from the inception of planning through construction-operation. These objectives shall be met by development and execution of Quality Management and Quality Control Plans and associated quality control activities.

6.2. *Execution.* The quality control responsibilities shall be executed consistent with the guidance set forth herein and with each district's Quality Management Plan. Subplans (see appendices) are provided herein describing quality control responsibilities for the products that are the primary responsibility of the Planning, Engineering, Real Estate, Construction, Operations, and Programs and Project Management functions.

6.3. *Measuring Quality.* USACE defines quality projects and services as those that meet customers expectation and that comply with legal obligations, Administration policy and meet or exceed the goals, objectives and expectations in the Project Management Plan (PMP). The Project Delivery Team (PDT) shall work with customers to determine and provide what is expected and must strive to deliver projects and services that are in the public interest. The PDT shall measure its success against the defined expectations defined in the PMP. USACE will not compromise professional standards. Deviations from Corps of Engineers publications and criteria require waiver approval by the applicable SPD or HQUSACE proponent. Such deviations require a full understanding of the basis of the requirement, including a determination of the basis for the deviation and of the inherent risk resulting from the deviation.

6.4. *Responsibilities:* Various participants in the project delivery and operations and maintenance processes have significant roles and responsibilities in achieving quality projects. These roles and responsibilities relative to project quality shall be described in the district's

QMP and shall include the responsibilities that are outlined below as well as in the enclosed appendices.

6.4.1. Project Manager. The Project Manager, as leader and part of the project delivery team, is responsible and accountable for delivering quality results. The PM must ensure that the local sponsor, customer and/or user's quality objectives are clearly articulated in the Project Management Plan, consistent with professional standards, laws, policies as well as public trust issues and in light of safety, fiscal, schedule, legal and other constraints. The Project Manager shall also ensure that a Quality Control Plan for a project has been developed and is implemented.

6.4.2. Project Delivery Team Member. Each member of the project delivery team is responsible and accountable for the quality of the products they produce, for overall project quality, for keeping the commitments for completion of their portion of the project as documented in the Project Management Plan and for fiscal stewardship.

6.4.3. Local Sponsor/Customer/User. As a member of the project delivery team, the local sponsor, customer and/or user is responsible for project quality by:

6.4.3.1. Working with the project delivery team in defining quality objectives for the project in the Project Management Plan; and,

6.4.3.2. Participating as appropriate in project delivery and quality control activities as appropriate.

6.4.4. Responsible Function Chief. As noted above, project delivery team members are fully responsible for the quality of the products they produce. However, the responsible function chief is ultimately responsible for the quality of the products produced by their subordinates. They do this in several ways. Functional chiefs:

6.4.4.1. Teach, coach, mentor and train staff so that they have technically competent staff to assign to project delivery teams;

6.4.4.2. Participate in selection of A/E firms to ensure that A/E's are qualified to perform assigned work;

6.4.4.3. Assign team members to project teams commensurate with their ability and experience;

6.4.4.4. Consult with project delivery team members on a periodic basis to get feedback and make adjustments as necessary;

6.4.4.5. Ensure that there are processes in place to ensure that an independent technical review is conducted by qualified individuals; and,

6.4.4.6. Serve on an independent technical review team (subject to the provisions of paragraph 6.9 of this plan) when appropriate.

6.5. *District Quality Management Advocate*: Each district shall appoint a lead advocate for their quality management program with responsibility for:

6.5.1. Oversight, coordination, implementation and management of the district's quality management program;

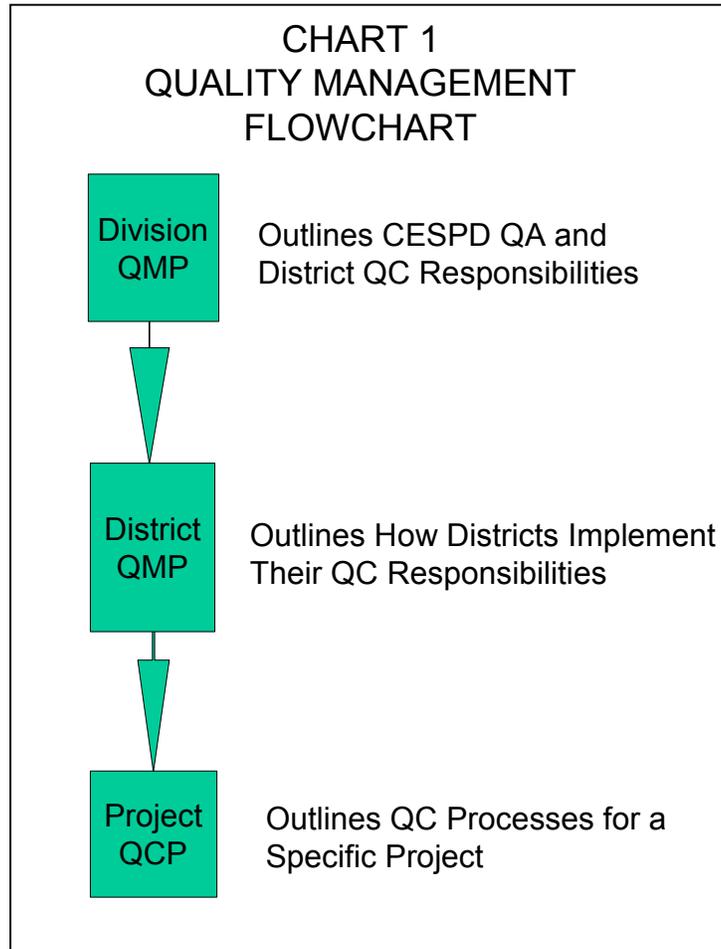
6.5.2. Coordination of district input to the SPD Quality Management Plan and Program;

6.5.3. Coordination of the annual review and update of the district's Quality Management Plan;

6.5.4. Development of the district's quarterly Quality Management Index report;

6.5.5. Development and implementation of district training on quality management; and,

6.5.6. Keeping district senior leaders informed of quality management activities within the district.



6.6. *District Quality Management Plan (QMP)*. Each district, in a coordinated effort of their Planning, Engineering, Real Estate, Construction, Operations, Programs and Project Management and other applicable district functional elements shall establish an integrated District Quality Management Plan (QMP) that complies with the policy and principles presented in this plan and in applicable USACE regulations. These QMPs shall be reviewed annually and updated as appropriate. Revisions shall be reviewed and approved by CESPD. Chart 1 provides an overview of the relationship of the Division and District QMPs.

6.7. *Quality Control Plan (QCP)*.

6.7.1. Requirements for Project Specific QCPs: A quality control plan (QCP) shall be prepared for every project or service, whether obtained using in-house or contractor forces, updated as warranted and reviewed annually. Contract forces may include other Corps of Engineers offices, other government agencies and private industry sources. The QCP should include, at a minimum, the items listed in paragraph 6.1 of reference 3.1 above, as well as a description of the resources required to accomplish the activities outlined in the QCP. The QCP shall be integrated into the Project Management Plan. Guidance specific to products that are the

primary responsibility of a functional element may be found in the individual subplans to this QMP.

6.7.2. Responsibilities: A single QCP shall be developed which encompasses the Planning, Engineering, Real Estate, Construction, Operations and Programs and Project Management aspects of a particular project or service. The functional element having primary responsibility for the technical quality of a project shall be responsible for development of the QCP for that project with input from all the other functional elements involved in development of the project. The QCPs should include a requirement for consistency review between the decision or implementation document and any supporting NEPA document(s). Table A-3 of Appendix A provides an overview of QCP requirements for in-house and A-E products.

6.7.3. Requirements for Generic and Programmatic QCPs: Routine or minor projects/products may utilize generic QCPs consistent with overall QA/QC roles. Programmatic QCPs may be developed and utilized for ongoing or continuous programs. Projects involving non-routine and/or complex analyses should utilize a project specific QCP. Generic and programmatic QCPs shall include a general description of the items listed in paragraph 6.1 of reference 3.1 above, and shall be updated annually. A one page Supplement to the QCP shall be developed for each project for which a generic or programmatic QCP is used to document the selection of project delivery and review teams, review schedule and costs and to provide any other needed details. The supplement to the QCP shall be developed and approved within 30 days after initiation of project development and shall be maintained in the project file. A list of projects for which a generic or programmatic QCP is used shall be maintained with the QCP.

6.7.4. Review and Approval: The responsibility for review and approval of QCPs is delegated by CESPD to its districts. Monitoring of the development, approval and execution of QCPs remains a CESPD quality assurance responsibility. QCPs, including generic and programmatic QCPs and supplements thereunto, shall be developed and approved by the responsible function chief within 30 days of initiation of project development and within 30 days of the implementation of major revisions to the QCP. Substantive efforts on project development shall not be undertaken without an approved QCP. Exceptions to the minimum requirements for QCPs set forth herein and reasons for the exceptions must be submitted to the responsible function chief for review and approval. See Appendix A, Table A-1 for a general listing of items requiring QCPs.

6.7.5. Updating of Quality Control Plans: Quality control plans, project specific, generic and programmatic, whether for in-house or A-E work, shall be reviewed annually and updated as warranted. QCPs shall be updated whenever significant changes require modification of the QCP. Upon identification of a needed change, the revised QCP shall be submitted to the responsible function chief for review and approval within 30 days.

6.8. Initial Technical Review Strategy Sessions: The initial technical review strategy session (TRSS - also known as the Technical Review Conference (TRC) at the initiation of PED for a Civil Works project) shall form the basis for a quality control plan for all major projects. This session shall be held early in the project development phase. The convening official for the initial TRSS shall be the PM unless it is combined with another formulation or scope meeting in

which case the responsible function chief would chair the initial TRSS. The PM shall be responsible for ensuring that all functional areas and expertise that are needed for project delivery are represented on the project delivery and independent technical review teams. All members of the project delivery (including representatives of the customer) and independent technical review teams as well as functional chiefs shall be required to participate in the initial TRSS. CESP D representatives shall be invited to participate in these sessions in a quality assurance role. In addition to establishing the independent technical review team, the participants shall review the Project Management Plan and shall establish the ITRT leader, level of review, cost and schedule of review, identify documents to be reviewed and identify policy or major technical issues that need to be brought to the attention of CESP D for resolution early in the project delivery process. Documentation of participants in the initial TRSS, discussions and conclusions shall be included in the project file as part of the Quality Control documentation package. For projects of an uncomplicated or routine nature, the responsible function chief may waive conduct of the initial technical review strategy session.

6.9. Independent Technical Review: Key to the successful execution of the quality control process for the projects developed by inhouse forces as well as by our contractors is the independent technical review of a project. This review shall be accomplished by an independent technical review team (ITRT) composed of individuals having expertise in and representing all disciplines involved in the type of project being developed and reviewed, who have a minimum of five years experience in the discipline and who were not involved in project development or supervision thereof. The function chief(s) of the technical disciplines involved in project development shall nominate the review team members. In addition, independent technical review of a supervisor's work by a subordinate may not be advisable and any proposal for such must be highlighted in the project QCP. Districts are strongly encouraged to identify and use reviewers from outside of their districts, as these individuals would bring a fresh, unbiased look at the project delivery process. Outside sources of reviewers include other Corps offices, Regional Technical Specialists, Centers of Expertise, government agencies and private A-Es. Independent technical review shall not replace the need for and conduct of design checks or supervisory review of projects. Sufficient time and resources shall be allocated to this process commensurate with the risk and complexity of the project and/or technical subproducts. Review comments should be constructive in nature, relevant to the product and should contain the following elements: (a) A clear statement of the concern; (b) The basis of the concern; (c) The significance of the concern; and, (d) The specific actions needed to resolve the concern. The review documentation shall include a statement that a reviewer has no comments during a project review if such is the case. The review documentation shall also include the responses and actions taken by project delivery team members to comments as well as the backcheck by the reviewer of responses to the reviewer's comments. Specific guidance on conduct of this quality control element is given in the individual subplans in the appendices to this document.

6.10. Seamless Review: Subproducts shall be technically overviewed before they are integrated into the overall project. To ensure this, project delivery team members shall consult with their Independent Technical Review Team (ITRT) counterparts at appropriate points throughout the project delivery effort to discuss major assumptions and functional decisions, analytical approaches and significant calculations to preclude significant comments from occurring during the final independent technical review, which could adversely impact project schedules and costs. The subproduct developer should normally initiate these counterpart discussions. Each

discipline shall engage in their counterpart discussions when appropriate. The conclusions/agreements reached should be documented, with copies retained by each participant and distributed to the ITRT leader and the project delivery team leader. The documentation shall become part of the project technical review file.

6.11. Dispute Resolution: The ITRT leader shall review the products and ITRT comments, project delivery team responses and backcheck of responses to reviewer's comments to identify any outstanding disagreements between members of the project delivery team and the ITRT. Any disagreements shall be brought to the attention of the appropriate functional chief to facilitate resolution of technical disagreements between project delivery team and ITRT counterparts. If this interaction does not resolve the issue, the responsible functional chief will make the final decision. The functional chief may consult with CESPD staff, which may serve as an unbiased sounding board; or major technical issues may be forwarded to CESPD for resolution.

6.12. Technical and Policy Issue Resolution: Issues involving technical and policy interpretation shall be brought to the attention of the chief of the responsible functional element for resolution. In some cases, the chief of the responsible functional element may request that CESPD hold an issue resolution conference to resolve major policy or technical issues. CESPD may also arrange for HQUSACE participation in the issue resolution conference.

6.13. Projects Developed by Contractors: Development and execution of a QCP for projects developed by a contractor, including architect-engineer (A-E) firms, A-E firms associated with contractors in design-build contracts, other Corps Field Operating Activities and other agencies shall be the responsibility of the contractor. The QCP for the contractor projects shall be reviewed and approved by the responsible function chief at the district. In order to maintain contractor responsibility, the contractor shall be responsible for QC of its own work in accordance with guidelines provided herein. The District should perform a review for scope compliance, but may perform independent technical review of the contractor's work only for special cases when special expertise is required. An overall quality control plan shall be developed by the district that outlines quality control activities by the district for that portion of the project delivery process performed by in-house forces and quality assurance activities by the District for overseeing the contractor's quality control activities. The responsible function chief at the district shall review and approve the overall QCP for the total project. Chart 2 illustrates the above requirements.

6.14. Final QC Documentation and QC Certification: Proper documentation is another key component of an effective quality control process. Significant comments, issues and decisions must be recorded and the entire process must leave a clear audit trail. The documentation and certification of the independent technical review and other quality control activities, and where appropriate the District's quality assurance processes prescribed in a project's QCP, shall be made part of the project file and shall be included with the submission of a specific project to CESPD. QC certification requirements are outlined in Table A-3 of Appendix A and are also summarized below.

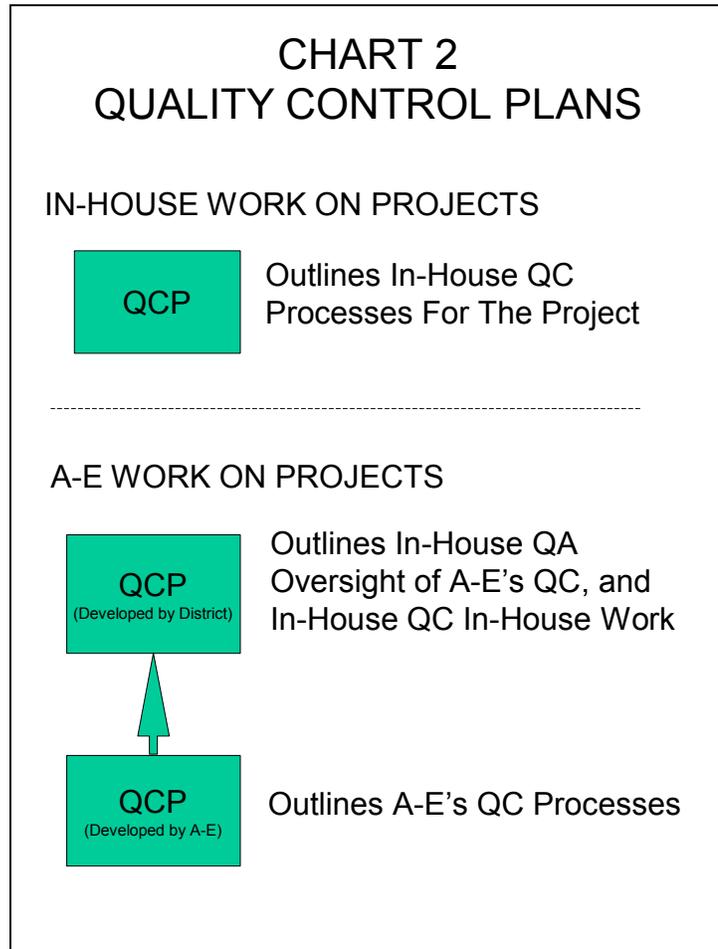
6.14.1. For interim (preliminary) projects/products which the responsible function chief either approves or transmits to CESPD, the responsible function chief shall certify that the quality control process for that project has been completed and that all technical issues that have been identified have been resolved.

6.14.2. For final projects, which are either approved at the District or by CESPD or headquarters, the responsible function chief shall recommend to the District Commander (DE) that the DE sign the certification. The District Commander's certification shall not be down delegated.

6.14.3. A model QC certification for projects developed either wholly or partially by in-house forces is provided in Appendix I.

6.14.4. For projects developed by A-Es or A-E firms associated with design-build contracts, the A-E shall execute an A-E Quality Control Certification (model provided in Appendix I) and provide a copy of this certification to the District. The A-Es independent technical review team leader shall recommend to a principal of the A-E firm that the principal sign the QC certification. The A-E's Quality Control Certification shall be made part of the district's overall quality control certification of the project.

6.14.5. For projects either partially or wholly developed by A-E forces or A-E forces associated with design-build contracts, the district shall execute a Quality Assurance Certification (model



provided in Appendix I). The responsible function chief shall recommend to the District Commander that the District Commander sign the Quality Assurance Certification. The A-Es Quality Control Certification shall be made part of the district's overall quality assurance certification of the project.

6.15. Role of the Project Manager: The project manager is the leader of the project delivery team. One of the project manager's roles is to provide adequate time and resources for the quality management activities associated with a project or service, including but not exclusive to the independent technical review team for the review of projects and adequate time and resources to the project delivery team to respond to and resolve quality issues. The USACE Business Process describes the standard operating procedures for team establishment and the team processes. In accordance with these procedures, the project manager shall negotiate the cost and schedule for members of both the project delivery team and the independent technical review team with the appropriate functional managers. However, in order to preserve the independence of the technical review, the project manager shall not be a member of the independent technical review team. In addition, to ensure that quality expectations are met in accordance with ER 51-11, the project manager shall ensure that certification requirements are met prior to approval of the project by the District Commander or transmittal of a project to CESPD.

6.16. Lessons Learned from Quality Control Activities: If, higher authority returns a project document to the district with technical and/or policy issues regarding the project after the project has received a Quality Control Certification, the Project Manager shall ensure that the Independent Technical Review Team (ITRT) for the project receives a copy of the higher authority comments for the purposes of lessons learned. The project delivery team remains responsible for address of the issues raised.

6.17. Quality Management Indicator (QMI) Report: District Commanders shall develop performance based measurement systems keyed to the concepts expressed herein. Program areas to report shall include Civil Works, Military, HTRW, SFO, WFO, Real Estate Services and other significant programs. The QMI report also shall include generic, programmatic and supplemental QCPs as well as QCPs developed for A-E projects and A-E projects from design-build contracts. The QMI report shall be presented at each district's CMR. Copies of the QMI report shall be provided to the Director, Military and Technical Services and Director, Civil Works and Management immediately after the District CMR. To support the data presented in the QMI report, each district shall also provide to CESPD a detailed breakdown by functional area showing specific projects requiring QCPs, date of initiation of project delivery process and the date the QCPs were approved. A sample QMI Report is provided in Appendix A. At a minimum, the summarized data for the QMI Reports shall include the following:

6.17.1. The total number of projects by program area that require QCPs. This number is the total number of projects under development in each respective program in the district, reduced by those that were initiated within 30 days of the QMI Report.

6.17.2. The total number of projects and percentage of projects having an approved QCP. This should be presented by program and as a district wide number and percentage.

6.17.3. The date of CESPD approval of the current District Quality Management Plan (QMP) and date of the next scheduled update.

6.18. Use of Checklists: Checklists may be used to guide the technical review and ensure that critical items are not overlooked. Checklists may be used to simplify the documentation of the review. Checklists may also be used to track outstanding action items for a particular study. The use of checklists shall not, however, eliminate the requirement to document specific comments.

6.19. Design Review and Lessons Learned System:

6.19.1. Background: ER 1110-1-8159, DrChecks, mandates the use of DrChecks, with its embedded Corporate Lessons Learned (CLL) module, as the Corps' official project design review, lessons learned and feedback system (see www.buildersnet.org/drchecks). Use of DrChecks is mandatory for all civil and military projects requiring design review. This policy is effective at the startup of the next logical design phase for military projects (e.g. "Code 6") regardless of program year and for all civil project starts (i.e. next logical implementation phase) in FY02.

6.19.2. Implementation: Districts shall designate one Oversight Manager and two Site Administrators for implementation of DrChecks. The Oversight Manager should be a senior level manager who shall act as the district advocate for DrChecks, having overall responsibility for the implementation and use of DrChecks within a district, keeping senior leaders in the district apprised of significant activities associated with the implementation and use of DrChecks and also ensuring that the use of DrChecks is incorporated into the district's quality management and business processes. The Oversight Manager shall also serve on the SPD-wide implementation committee for DrChecks. The Site Administrators (one primary and one alternate) shall have the day-to-day responsibilities for setup of the district system, interface with DrChecks development team at CERL, and technical support for and training of district personnel. The District shall also designate subject matter experts (SME) in each of the major technical function areas who shall be responsible for review of ideas submitted by reviewers for consideration into the lessons learned database.

6.19.3. Regional Implementation Guidelines: As it is anticipated that DrChecks will be used by not only inhouse forces but also other districts, other Corps field operating activities (such as CEIWR-HEC and ERDC-CHL), other federal, state and local government agencies, customer/stakeholders, A-E's, etc., for the review of district projects, the following regional implementation guidelines for use of DrChecks are provided:

6.19.3.1. Use of DrChecks as the district's design review and lessons learned system shall be incorporated into the district's quality management and business processes in a manner consistent with guidance provided herein.

6.19.3.2. For the Civil Works Program, DrChecks shall be used for review of all implementation (i.e. post-decision document) phase products which support Civil Works (including Continuing Authority) projects, including (but not exclusive to) Design Documentation Reports (DDR);

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Plans and Specifications (P&S); Biddability, Constructibility, Operability and Environmental (BCOE) reviews; Operation and Maintenance Manuals; Water Control Manuals; etc.

6.19.3.3. For all military projects, DrChecks shall be used for review of all design submittals.

6.19.3.4. Project Managers shall ensure that DrChecks is utilized for design review of their projects, whether inhouse forces develop these projects or forces outside of the district.

6.19.3.5. In the case where a project is designed in one district but the Project Manager resides in the geographic district for the project, the design district shall be responsible for setup of the project in DrChecks. The Project Manager remains responsible for ensuring that the review is accomplished.

6.19.3.6. Use of DrChecks in the design review of a project and the project specific processes that will be followed in use of this system shall be outlined in the Quality Control Plan portion of the Project Management Plan.

6.19.3.7. Districts shall establish business processes that require all comments on a project entered into DrChecks are addressed and resolved prior to proceeding to the next phase of the design process or prior to project completion.

6.19.3.8. Comments entered into DrChecks shall not be deleted/retracted from the system other than by the reviewer submitting the comment.

6.19.3.9. District shall establish business processes for use of DrChecks as a quality assurance tool for oversight of projects developed by A-E's.

6.19.3.10. For all projects entered into DrChecks, the appropriate District Support Team (i.e. single user name) shall be entered into the review system for quality assurance purposes

6.19.3.11. Designated subject matter experts shall review ideas submitted by reviewers to determine their appropriateness for entry into the Lessons Learned database. Considerations for entry shall include but not be exclusive to guidance or criteria not presently found in existing literature, concerns of a recurring nature, concerns of an infrequent nature that would otherwise not be found in existing literature, etc. Designated subject matter experts shall review on an annual basis the district's lessons learned database to ensure that all entries remain current.

6.19.3.12. Districts shall ensure that appropriate training is provided to users of the system.

7. CESPD Quality Assurance Responsibilities

7.1. *Objectives.* In accordance with the MSC Quality Assurance focus areas identified by HQUSACE, the South Pacific Division shall be responsible for conduct of quality assurance activities to assure the following:

7.1.1. Mechanisms and procedures are in-place to enable the districts and their contractors to:

7.1.1.1. Produce quality projects that comply with established criteria, methods and procedures, and

7.1.1.2. Apply competent technical resources to decisions and reviews.

7.1.2. Districts and their contractors plan, design and construct safe, functional, cost effective and environmentally sustainable projects that accomplish authorized purposes and meet or exceed customer's expectations and the national/public interest.

7.1.3. The Districts and their contractors develop and execute quality control plans that:

7.1.3.1. Provide a level of detail appropriate to the type, complexity and acceptable level of risk of the project;

7.1.3.2. Are consistent with guidance provided; and

7.1.3.3. Provide for documentation of quality control actions, including reviews, comments and resolution of comments.

7.2. Execution. Quality assurance responsibilities shall be executed consistent with CESPD functional statements and are an integral part of the USACE Business Process. The chief of each functional element within CESPD shall have overall responsibility for quality assurance activities of projects within their respective functional elements and missions, and shall be supported in their QA activities by district support teams and by the chiefs and staffs of the other functional elements of CESPD as noted below. Functional elements within CESPD have prepared subplans (see appendices) to execute their quality assurance responsibilities based on their functional statements and reflecting the projects that are within their functional area and responsibility. Chart 1, above, provides an overview of quality management processes. CESPD's quality assurance focus areas include:

7.2.1. Focus Area #1: Develop and Maintain the CESPD Quality Management Plan: CESPD has developed this Division's Quality Management Plan, outlining the policies and procedures that all functional areas within CESPD shall follow for their quality assurance activities and that all functional areas within the districts of CESPD shall follow for their quality control responsibilities for in house projects and for their quality assurance responsibilities of A-E work. The Division QMP shall be reviewed annually and updated as warranted.

7.2.2. Focus Area #2: Review and Approve District Quality Management Plans: CESPD shall review and approve each district's Quality Management Plan, and annual updates thereof, which shall outline the policies, procedures and responsibilities of all functional areas for producing quality projects and services. District QMPs shall be reviewed annually and updated as warranted.

7.2.3. Focus Area #3: Monitor Development and Execution of Project Quality Control Plans: CESPD shall ensure that procedures are in place within each district for the development, review, approval and execution of project specific, generic and programmatic QCPs. The authority for review and approval of QCPs is delegated by CESPD to its districts. CESPD shall

ensure compliance with approved QCPs by periodically verifying the independence of independent technical reviews (ITR), resolution of comments, documentation, etc. CESPD shall oversee the district's QA role when the district conducts QA activities for A-E and other contracted projects. This also includes oversight of district QA plans for monitoring construction contractor's QCPs.

7.2.4. Focus Area #4: Audit District Quality Processes. CESPD shall review district projects as an element of QC Process Evaluation. This includes meeting periodically with districts to review their quality control processes through evaluation of selected projects and services at various stages of development to assure compliance with the Division and District QMPs. Feedback to the district on these quality assessment audits is essential for district process improvement and as feedback to districts for lessons learned processes.

7.2.4.1. General: CESPD shall selectively audit the districts' QC processes, which may include spot-checking specific technical products to assure the quality of the review and the resulting quality of the technical products. These reviews shall be for the purpose of identifying system problems, trends and possible improvements to the quality management, quality control and project delivery process, serve as feedback to HQUSACE as part of the lessons learned process and assure compliance with current CESPD and HQUSACE policy. The selection of projects/products for detailed audits shall be based on a number of criteria, including: the expressed needs and concerns of the district, new processes or techniques, or product types that have poor performance histories. Audits shall be conducted on an annual basis to assess each district's quality management processes. However, determination of the need for an audit may be made at any time during the project delivery process. The audit process may take many forms as discussed in the subplans to this QMP. Audits will be conducted on the quality management of a district's projects in compliance with HQUSACE, CESPD and each individual district's quality management guidance and as they support customer satisfaction and the strategic goals of the Corps vision outlined in paragraph 5.1, above.

7.2.4.2. Focus of Quality Assurance Audits: The principal focus of the quality assurance audits shall be on the quality management processes used by the district to assure development of a high quality project whether developed in-house or by an A-E. Review of the quality management processes for selected district projects will be used in assessing and rating each district's implementation of the appropriate quality management guidance. In addition, discussions with district personnel shall be part of the audit process to assess the conduct of quality control activities associated with a specific project as well as the successes and needs for improvement of the quality management of the various district programs. Checklists for the audit will be one tool used in assessing and developing the rating for each district's quality management program. Discovery of problems with the district's quality management processes may necessitate obtaining additional information from the district to address CESPD concerns.

7.2.5. Focus Area #5: Review and Evaluate Performance Indicators. CESPD shall proactively track existing HQUSACE performance indicators and develop and maintain regional indicators as required. This includes the quarterly district Quality Management Indicator report previously described in paragraph 6 above. CESPD also shall identify areas needing command attention to assure a viable organization that is responsive to USACE customers through quality projects.

7.2.6. Focus Area #6: Continuous Involvement in Project Delivery Process. CESPDP shall participate in selected project meetings as required by policy guidance and as needed for high visibility and/or complex projects. CESPDP shall assist in resolution of policy and/or technical issues and interface with HQUSACE as appropriate, approve deviations from criteria and conduct selected project site visits, as outlined below:

7.2.6.1. In-Progress Conferences: In-Progress Conferences shall serve as formal quality assurance checkpoints to ensure that quality control has taken place and that appropriate progress, particularly in prolonged project development efforts, is being made in the project development. CESPDP participation in these conferences shall be a significant element of CESPDP's quality assurance program. Requirements for such conferences are included in the subplans for the various functional elements.

7.2.6.2. Initial Technical Review Strategy Sessions. See paragraph 6.8, above.

7.2.6.3. Technical and Policy Issue Resolution Conferences (IRC): Issue Resolution Conferences (IRC) may be required during the project delivery process. These may be called at the request of: A district to address major issues raised as a result of quality control activities; CESPDP, to address major issues raised as a result of quality assurance activities; and, mandatory issue resolution conferences under the respective functional element's umbrella of responsibility. All issue resolution conferences shall be chaired by CESPDP.

7.2.6.4. Counterpart Consultations: An essential quality assurance activity shall be informal, counterpart consultations between district and CESPDP personnel. These consultations shall be informational "two-way streets", providing CESPDP personnel an opportunity to assess whether district and/or contractor activities for project delivery are in compliance with the established quality control plan and providing district personnel with an informal avenue to CESPDP personnel on resolution of unique technical problems and/or issues on project delivery.

7.2.7. Focus Area #7: Partner, Coordinate and Mentor with District. CESPDP shall provide for continuous dialog and interactions with counterparts to keep them informed of upcoming work, training, new regulations, etc. CESPDP shall also develop and implement regional guidance, regional training, share lessons learned and facilitate changes in criteria, facilitate partnering and sharing of resources across districts and evaluate district technical capabilities and needs. Quality assurance also includes an evaluation of the district's development and maintenance of the technical competency for production and review of a project.

7.2.7.1. If project delivery and/or review team members with the appropriate technical expertise in a specialty area are not available from within the district, the district must seek such expertise from outside sources, such as other districts, divisions, COE laboratories, Regional Technical Specialists (see below), customer's organizations or private consultants. At the request of the districts, CESPDP may provide assistance on seeking such expertise. The approval of a quality control plan for a project shall be the acknowledgement of the credentials of the project delivery and technical review teams. To assist in this process, the quality control plan shall include the technical qualifications of the technical review team, to include the number of years of relevant experience.

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7.2.7.2. CESPD shall aid in fostering the technical competency of its Districts through partnering sessions, encouraging the professional development of its staff through training, participation in professional societies and conferences, etc. In addition, CESPD staff is available to provide training on the quality management guidelines and procedures outlined herein.

7.2.7.3. To facilitate identification of personnel with unique technical expertise, membership in and use of the CESPD Skills Inventory and Experts Registry is encouraged.

7.2.7.4. Regional Technical Specialists. The Engineer and Scientist Career Program Planning Board, in May 1997, directed that a strong career ladder for technical disciplines is essential to maintaining CESPD core competencies. With districts being fully responsible for the technical adequacy of projects, the establishment of enhanced non-supervisory technical specialist positions at the district level was imperative and a division-wide advisory panel was established. Technical specialist positions are regional in nature, including the workload of the home district as well as the workload of the entire Division. A minimum of 25% of a regional technical specialist position is as a CESPD regional expert, which would include: serving as an independent technical reviewer for other districts, trouble shooting for other districts, or representing the entire Division at meetings and conferences. The other 75% of the position would be directed specifically at the home district's technical requirements. A listing of the technical specialist positions is included on the CESPD homepage.

7.2.8. Focus Area #8: Approve/Certify Programming Activities. CESPD shall ensure coordination of all programming activities with HQUSACE and districts. Detailed descriptions of this responsibility will be provided in separate guidance on the CESPD function of program management.

7.2.9. Focus Area #9: Conduct and Provide Feedback on Command and Staff Inspections. CESPD shall examine mission execution, level of training, FTE resources, workload, compliance with standards and regulations and obtain feedback on morale, welfare, discipline and problems / needs through command inspection visits and/or staff inspection. These visits shall ensure that district personnel are aware of and comply with all requirements in this quality management plan and in each district's quality management plan in support of the USACE Business Process. Compliance by the districts and their contractors with this plan shall be discussed during these visits as well as any required corrective actions required to ensure compliance. These visits shall also serve to surface required modifications to the district's quality management plans, project specific, generic and programmatic quality control plans and to this CESPD quality management plan. If a given annual Command Inspection Visit is not focused on quality management, a separate visit shall be conducted for this purpose.

7.3. *District Support Teams.* District Support Teams were chartered to support the districts in the execution of their programs. They are tasked to provide maximum support to the districts in delivering projects to its customers. In the context of quality management, this would include providing oversight and quality assurance of the district's overall quality management program, assisting the districts on project specific issues, performing policy reviews for delegated actions, processing district products through CESPD, HQUSACE and ASA (CW), performing quality assurance audits as well as the full range of quality assurance activities as outlined above. The

District Support Teams include members from Civil Works Management, Planning, Engineering, Construction, Operations, Real Estate and Counsel. The coordination among the members of the District Support Teams is described in the Principle and Guidelines for the District Support Teams.

7.4. Participation of an individual from CESPD on a project's independent technical review team would compromise that individual's ability to perform quality assurance on that project and is prohibited. CESPD team members not involved in quality assurance activity on a specific project or technical product may, at the request of a district and with the approval of the Director of Military and Technical Services or the Director of Civil Works and Management, participate in the technical review of that project. In this situation, the requesting District would be required to fund this review activity.

7.5. Coordination of SPD-wide Design Review and Lessons Learned System (see Para. 6.19, above):

7.5.1. Regional Oversight Committee: SPD shall establish an SPD-wide committee composed of a designated point of contact within SPD HQs and the designated district Oversight Managers. The purpose of this committee is to develop and maintain regional implementation guidance for use of DrChecks as the regional design review and lessons learned system; ensure that appropriate training is provided to users of this system; and that proposals for modifications to the system reflect regional needs.

7.5.2. Use for Quality Assurance: District Support Teams shall use DrChecks for quality assurance purposes. District Support Team members shall not perform technical review of any projects using DrChecks unless specifically requested by the District following guidance provided in paragraph 7.4 above. District Support Team members may be requested to assist the district in resolution of technical and/or policy issues raised by a reviewer which may be facilitated by the use of DrChecks.

7.6. Delegated Responsibilities of CESPD: Approval authority for a number of programs has been delegated to CESPD. In addition to quality assurance responsibilities for technical review, CESPD has quality control responsibilities for policy compliance of delegated authorities. In that regard, CESPD is responsible for policy compliance review of projects that are approved by the Division Commander. HQUSACE will provide policy QA of programs/documents delegated to CESPD. Procedures for CESPD policy compliance review of all decision documents for delegated programs are addressed within the appropriate subplan. See Appendix A, Table A-2 for list of delegated responsibilities.