

Quality Management Plan
For
Sacramento District

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Changes to this document require the concurrence of the District Staff Chiefs and approval by the District Engineer, and shall only be made following the procedures described herein.

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- App A Engineering Quality Manual*
- App B Quality Management Plan for Planning*
- App C Quality Management Plan for Real Estate*
- App D Quality Management Plan for Construction-Operations*
- App E Quality Management Plan for Programs and Project Management*
- App F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification*

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1.0 PURPOSE

The purpose of this Quality Management Plan (QMP) is to provide general policies and principles to be followed by Sacramento District in the continuing endeavor to improve the level of quality delivered to our customers and to our own internal elements. Specific quality management polices and procedures for the five District staff elements of Engineering, Planning, Real Estate, Construction-Operations, and PPMD are found in Appendices A, B, C, D, and E and are not duplicated herein.

2.0 SCOPE

This QMP applies to the Sacramento District and shall be observed by every member and every organizational element of the District. These elements include, but are not limited to, military, civil works, hazardous/toxic/-radioactive waste (HTRW), work for other DOD agencies (WFO), and support for other (SFO) projects. This QMP describes the roles and responsibilities of the major participants in the process, gives an overview of the Quality Management and Quality Control Plans, and details the specific requirements of the Seamless Review, ITR process, and QC Certification.

3.0 REFERENCES

CESPD Regulation 1110-1-8, Quality Management Plan

AR 5-1, Army Management Philosophy

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

ER 1110-1-12, Quality Management

ER 1110-1-8159, Engineering and Design, DrChecks

EP 715-1-7 Procurement - Architect-Engineer Contracting

“Leadership for Total Army Quality” Concept Plan, OCSA, HQDA, (DACS-DMM)

CESPD Regional Project Management Business Process

4.0 DEFINITIONS

See *ER 1110-1-12* and *CESPD R 1110-8* for definitions not listed here.

A clear understanding of terms, roles and responsibilities in the quality management process is essential for the effective production of quality projects and products. Described below are the terms, roles and responsibilities used in this QMP.

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Customer - The owner, project partner, client, user, beneficiary, project manager (PM), or any entity or representative of an entity, which (who) buys the services or product of the Sacramento District through a contract. Customers participate on the PDT and articulate their requirements for the project and their expectation of quality. They may be PM for other District offices, Construction-Operations Divisions, Contracting Divisions, Office of Counsel, Planning Division, installation project representatives, Support for Others site managers and local planners with SPD boundaries. They may also provide ITRT members.

USACE Business Process - The *USACE Business Process Manual* addresses both program and project level processes. It establishes a culture of customer focus; it establishes a baseline project delivery process for all work; it integrates corporate doctrine (*ER 5-1-11*) with corporate Automated Information Systems (AIS); it establishes effective corporate management practices; it implements and executes corporate management practices; and it clarifies roles. (Note: The USACE Business Process Manual is a further enhancement of the *RPMBP*. SPK will continue to follow the tenets of *RPMBP* unless specific format changes are required to interface with P2 requirements.)

Regional Project Management Business Process (RPMBP) – An integration of project management and workload management processes, tools, and reports implemented across the South Pacific Division. The *RPMBP* Standard Operating Procedures utilize the Automation Information Systems (AIS) for management of ALL work (Civil, MILCON, HTRW, SFO/WFO, Civil O&M, Regulatory, Emergency Management, Real Estate, Military O&M, etc.). AIS include PROMIS, MS Project, CEFMS, a local (PMBP 2000) and a Regional Database to forecast total Division workload, common reports including data rollups across Districts, ability to forecast total Division workload, ability to level resources across Districts, and ability to measure success of project delivery to our customers.

Project - A unique process, consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost and resources. It can be 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.
3. Have a defined scope, schedule, cost and criteria for performance measurement.

Project Management Business Process (PMBP) - An integration of many detailed processes that provides the boundaries of execution for all work with the District. The *PMBP* Standard Operating Procedures utilize the District's AIS: PROMIS, MS Project, CEFMS, and the Local Database (*PMBP* 2000) to accomplish all products and services provided by the District.

Project Management Plan (PMP)- The PMP is the detailed, specific plan used to manage and control the delivery of a specific project from its inception to completion. It is comprised, at a minimum, of the project scope, PROMIS resource plans, list of team members, the team communication strategy, PROMIS schedule, Organizational Scopes (Scopes of Service), or A-E Scope of Work and the Quality Control Plan (QCP). See *ER 5-1-11* for a full definition of Project Management Plans.

Project Manager (PM) - The PM is the leader of the Project Delivery Team (PDT). The PM, with input from the PDT, including the customer, has the responsibility for the development of the PMP, which will include the project QCP. The PM ensures adequate funding for the PDT and ITRT, verifies that QC certification requirements are met prior to Commander approval, monitors customer satisfaction, and with the ITRT leader, facilitates resolution of

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issues between the PDT and ITRT.

Project Delivery Team (PDT) - The PDT is comprised of the PM, all technical support team members, including outside agency personnel, and the customer. The PDT is responsible for the development and delivery of required products and services. The PDT develops technical information, prepares the technical documents, and provides sufficient time for performance of the ITR prior to completion of the final product. They also respond to ITR comments in accordance with the Quality Control Plan (QCP) schedule and participate in dispute resolution. PDT members request Seamless Review sessions with their ITR counterparts, by email, during project development in order to verify that the quality of all components is on track prior to the final ITR.

Design Lead (DL). The DL is an active senior member on the PDT who facilitates technical integration of sub-products, is a conduit for sharing information, and seeks to reach PDT agreement. The DL will work closely with the ITR lead to resolve technical issues and conflicts.

Process Action Teams (PAT) - A PAT is composed of individuals who are involved in the processes being investigated. Their respective managers on the Quality Management Boards often choose the members of a PAT. Reference manual titled "Leadership for Total Army Quality Concept Plan" (Appendix 1).

Resource Manager (RM). The RM (First Line Supervisor) assigns personnel to a PDT or an ITRT, participates in technical review strategy sessions, resolves discipline-specific technical issues, and provides technical project development and Quality Control (QC) / Quality Assurance (QA) mentoring. The RM is responsible for the quality of discipline-specific sub-products, accomplished through product development peer design checks and other internal procedures.

Functional Chief (FC) - The Functional Chief is the chief of the functional element responsible for the current project phase. The Functional Chief ensures the quality of Decision and Implementation Documents, Plans and Specifications (P&S), Requests for Proposal (RFP) for Design-Build and other stand-alone documents and products, as well as compliance with current policies. The Functional Chief provides oversight for resolving technical issues, approves the QCP and QC Certification recommendation, and advises the Commander of the adequacy of the completed project. For Civil Works, he or she also chairs in-house technical review conferences. The Functional Chief signs the QC Certification form which recommends QC certification of the final project to the District Engineer, who provides the official QC certification of the project. For certain projects, the Functional Chief has the authority to provide the official QC Certification. This certification recognizes that all development and technical review procedures appropriate to the technical complexity of the project have been accomplished, and that the project may proceed to the next phase. See [Appendix F](#) for the standardized SPK QC Certification forms.

Quality - The word quality has two major meanings and is usually defined by the customer: (1) those product features which respond to customer needs, and (2) freedom from deficiencies. Reference definition in the manual titled "Leadership for Total Army Quality Concept Plan." Quality shall be a primary concern in the development and delivery of Products and Services. All products and services shall meet or exceed our customers stated and implied expectations. To achieve quality, we strive to put the right people with the right skills and tools on the right job; hold each person responsible for the quality of his or her own work; and insure that all projects conform to applicable legal, environmental and life safety requirements.

Quality Control (QC) - Activities taken to ensure quality verification for each discipline. QC includes such activities as review of assumptions, checks on methodology and calculations, adequacy and completeness of information, and compliance with regulations, laws, policies, guidelines, and procedures.

Quality Assurance (QA) - Activities taken to ensure the overall effectiveness of the quality control process, consist-

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tent with regulations, laws, policies, guidelines, procedures, and customer requirements.

Quality Management - 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 management system.

Quality Management Plan (QMP): The QMP establishes and defines the District’s overall QM procedure to ensure the development of quality decisions and preparation of quality documents. The QMP includes the requirement for all implementation, decision, and other stand-alone documents to undergo an ITR, and applies to all technical activities from planning through operation and maintenance. It also defines the roles and responsibilities of the Functional Chief, RM, PDT, ITRT, and PM. Functionally specific information can be found in District QMP appendices. Each division in the District has an appendix to the QMP. The Sacramento District QMP can be found on the Engineering Division ISO 9000 web site at http://iso9000.spk.usace.army.mil/documents/qmp_s/qmp_s.html.

Quality Control Plan (QCP) - The QCP is a management plan for executing a quality service or product on schedule and within budget. The QCP is a project-specific document that provides a framework for developing the project and conducting the technical review. The QCP is included as a section of the Project Management Plan (PMP) developed for each project. The QCP identifies the project documents to be reviewed, the development team, the ITR team, and their responsibilities, client needs, regulations, policies, guidelines, schedule and costs for both development and review of the study or project. A QCP is prepared for every project/service, whether prepared in-house or by contract, except for those identified as small and/or low risk. When a project is to be developed by in-house staff, the responsible in-house staff prepares the detailed project QCP. When a project is to be developed by a contractor, the contractor prepares the detailed project QCP and submits it to the District for approval. A generic QCP with a project-specific supplement may be used for Design/Build (RFP); routine, small, or low risk projects/services, if approved by the appropriate Functional Chief.

Quality Assurance Plan (QAP) - The QAP is a project-specific document, which is developed by District staff (PM) when a project is to be developed by a contractor. It cites the QC responsibilities of the contractor, and defines the degree of Quality Assurance (QA) oversight/verification to be provided by the District in order to ensure that the QC procedures cited in the contractor’s QCP have been followed, and to gage their effectiveness in producing a quality project.

Independent Technical Review (ITR) - A review by a qualified person or team not involved with the development or supervision of a project. The purpose of the review is to confirm the proper application of clearly established criteria, regulations, laws, policies, guidelines, and procedures.

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 product and verifies the reasonableness of the results including whether the product meets the customer’s needs consistent with law and existing policy and engineering and scientific principles.

Independent Technical Review Team (ITRT): - An interdisciplinary review team formed to perform the ITR. The ITRT includes senior technical and policy experts (with at least 5 years of experience in a relevant discipline) to the greatest extent possible, and mirrors the PDT in their respective disciplines. The ITRT provides unbiased, independent, and seamless review of the District’s decision and implementation documents, and conducts timely in-progress reviews of completed documents for the scheduled ITR. Team members may include representatives from all technical disciplines and support offices, the customer, and consultants. PM and RM are excluded from partici-

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pation on an ITRT.

ITRT Leader. The ITRT leader coordinates the ITR review of documents and materials identified in the QCP with the ITRT, PDT, PM, RM, and others. Selection of the ITRT leader is a cooperative effort between the PM, primary RM, and Functional Chiefs; however, the ultimate decision rests with the Functional Chief responsible for the phase of the primary product. It is the ITRT leader's responsibility to distribute review materials and reports to the ITRT members for comment. ITRT Leader determines if the use of DrChecks would be efficient for the ITR. If DrChecks is not used, the ITRT leader polls the ITRT to determine if the review is complete. The ITRT Leader shall review all ITR comments resolve any disagreements between disciplines, eliminate duplicate comments,. When the ITR is complete, the ITRT Leader will notify the PM and PDT, via e-mail, that the ITR comments are available for evaluation. If DrChecks is not used, the ITRT Leader will consolidate all comments into an organized set by discipline, and forward the comment set to the PM and PDT via a memorandum. The ITRT leader chairs ITR meetings, ensures proper documentation of the review process, and facilitates (along with the PM) resolution of disagreements between the ITRT and PDT. The ITRT leader also assists the PM in monitoring ITRT costs and schedules, and keeps the Functional Chief and PM informed of review status and policy issues. The ITRT leader makes a formal recommendation to the Functional Chief regarding Quality Control (QC) certification of the final product. Generally, the ITRT leader and the PM shall jointly sign the QC recommendation to the Functional Chief. For large, complex products/projects the whole team may sign the recommendation. When appropriate, electronic signatures may be used (e.g., for regional teams that are geographically dispersed).

Management Review - Managers will continue to review all documents that do not require higher-level approval for execution.

5.0 POLICY

The policy of the Sacramento District is to utilize the USACE Business Process, the RPMBP and the PMBP and its associated Standard Operating Procedures to consistently provide high caliber management, engineering, design, planning, real estate, construction and operation services and products to meet our customers' expectations on quality, schedule, and budget. The direction offered in this document will ensure that we achieve this goal. All quality management activities, such as quality assurance and quality control, shall be performed only when value to the customer is added to the overall product or service. Quality management must be conducted on all products and services and will be commensurate with the size and complexity of each individual product or service provided. Quality does not imply perfection; however, there must be no compromise of functional, health, or safety requirements. The PDT must have a clear understanding of how our customer defines success. The Project Manager has the overall responsibility to insure that adequate schedule time and funds are provided for all quality-related activities, including preparation of quality control plans and all review activities.

6.0 QUALITY MANAGEMENT

Customer Centered Leadership - Every action that is undertaken within the Sacramento District shall be questioned as to how it will directly or indirectly affect the customer. All aspects are to be analyzed with respect to meeting budgets, schedules, functionality, and compliance with governing criteria. This form of customer-centered leadership will be documented in the PMP and agreed upon by all parties, customer, technical staff (A-E or In-House), and management from all Divisions that have a role in the process.

Continuous Improvement - Individuals within Sacramento District will strive for continual improvement in every aspect of their work. The embrace of Total Army Quality (TAQ) philosophy will accomplish this. Process im-

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provement can occur either through individual input or through involvement in Process Action Teams (PATs). Individual suggestions that can save the Government money can be put forth through supervisory channels or be formally submitted through the Suggestion Coordinator in the District's Resource Management Office.

Empowerment - People shall be given as much authority as is commensurate with their position and realm of responsibility. Supervisors are to encourage a proactive, team-spirited, work environment through actual work examples and formalized training in Team Concepts.

The responsibility for the coordination of planning, design, and construction shall be the responsibility of the entire PDT led by a single Project Manager. The PM is the District Engineer's direct representative for assigned projects and is accountable as such for the overall management and leadership of those projects and PDT's. Although the QCP will identify by name the specific team members and their primary functions, each member will do whatever is necessary to ensure success throughout the life of the project. The Project Manager will function as the Team Leader, however, in the absence of this individual any other Technical Team Member who is available, shall assist the customer or other Corps staff who may have a problem or a question. The PM is the primary contact with the Sacramento District's customer and is responsible for delivery of products and ensuring that all commitments are met or exceeded.

6.1 Quality Management Plans for Divisions

Each of five District staff elements (PPMD, Engineering and Design, Planning, Real Estate, and Construction-Operations) shall prepare and maintain a Division specific QMP as an Appendix to the District QMP. These QMP appendixes are to be in compliance with and supplement the regulations and documents referenced herein. All new Appendixes and/or revisions will be subject to the approval of the District Engineer.

6.2 Project Initiation, Coordination, and Team Development.

A Project Manager is assigned to every project to serve as the project team leader and to provide overall management, leadership, and accountability for the project. The Project Manager shall follow RPMBP Implementation Memorandum #3 for assembling the project team. It is through this process that appropriate data will be reviewed to determine whether or not in house technical resources are available, and if not, whether, and to what extent, other Corps or Architect-Engineer (A-E) resources will be pursued to accomplish the work. Additional direction on use of in-house personnel vs. other sources is contained in Corporate Board Memorandum #99-04. If the decision is made to use an A-E, appropriate technical resources will be made available to the PM to assist in development of the Scope of Work, providing technical guidance to the A-E and for technical review of the A-E products.

6.2.1 Project Management Plan.

All projects shall be executed in accordance with a PMP developed by the project team members, including the customer. The PMP shall be developed and maintained at a level of detail commensurate with the size and complexity of the project.

6.2.1.1 Project Scope.

This shall include the project description, initial project parameters, key products to be developed, tasks to be accomplished, listing of applicable design criteria, key milestones, and commitments to the customer/sponsor.

6.2.1.2 PROMIS Resource Plans.

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The resource plans are comprised of the work breakdown structure, developed from the minimum WBS's contained in PMBP Implementation Memorandum #4, the required resource assignments and associated costs.

6.2.1.3 PROMIS Schedule.

This is developed from the final work breakdown schedule for those tasks identified in PROMIS as network analysis system (NAS) activities. The NAS utilized by this District is Microsoft Project. The PM works with the team members to identify tasks to be accomplished task duration and task relationships, both parent/child and task dependencies to construct the total project schedule.

6.2.1.4 Scopes of Service (SOS)/Scope of Work (SOW).

The SOS's serve as a contract between the PM and the individual technical/functional organizations. The Project Manager shall prepare each SOS in accordance with PMBP Implementation Memorandum #8. The Scope of Work for an A-E Contract would essentially be a compendium of Scopes of Service as would have been developed for in house services, without the cost information which is developed as a separate Government Estimate for the purposes of negotiating with the A-E firm.

6.2.1.5 Quality Control Plan (QCP)

A QCP is required for every product or service provided by the Corps, whether produced using in-house or A-E personnel. The purpose of the QCP is to ensure development of a quality product or service from inception through completion of the Quality Control Certification. The content of the QCP is dependent on the complexity of the product or service being provided and can range from a generic QCP to a Project/Product/Service Specific QCP. Civil Design and Military Design Branches of Engineering Division maintain standard QCP templates. The QCP is a living document and becomes part of the PMP. Generic QCP's can be developed for those products/services that are considered "repetitive" and/or serve as a "template" for tailoring for small, low dollar value projects. The PDT (AE) prepares a draft QCP with input from the ITRT.

6.2.1.5.1 QCP for Civil Works

The draft QCP for CW is reviewed at the initial Technical Review Strategy Session (TRSS). The TRSS is chaired by the PM unless it is combined with another formulation or scoping meeting in which case the Functional Chief would chair the initial TRSS. In either case, the Functional Chief, appropriate RM and Branch Chiefs, partner/client, SPD representatives, PDT, and ITRT (or their alternates) attend the TRSS. The responsible Functional Chief can waive the requirement for the initial TRSS based on the nature of the project and complexity. In addition to the review of the draft QCP, the purpose of the TRSS is to identify the documents to be developed and reviewed, identify major technical issues, assess the cost and schedule of review, and identify potential major policy or technical issues. The Final QCP is then submitted to the responsible Functional Chief for approval and is incorporated into the PMP.

6.3 Project Quality Control

The Project Manager plays a key role in ensuring development/delivery of quality products and services. The PM must work with all team members in development of project QCP's. The functional chiefs are responsible for the quality of the products they deliver as part of the project. It is the PM's responsibility to insure that each project has a QCP commensurate with the complexity of the specific project. The PM must provide adequate funding and schedule time for the development of the project QCP and for all quality-related reviews required during the course

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of project development. The PM may delegate responsibility for development of project QCP's to the appropriate team members; however, the PM is ultimately responsible for the development and implementation of the required quality control activities.

6.3.1 Managing the Process

The PDT and ITRT must regularly coordinate schedules to ensure that the project development and review processes move forward in an unimpeded manner. PDT and ITRT counterparts may independently coordinate, schedule, and conduct Seamless Review sessions as required throughout the project development cycle.

6.3.2 Seamless Review

Reviewers need to be actively involved throughout the project development process and must maintain constant lines of communication with the PM, ITRT leader, PDT counterparts, RM, and others (contractors and agencies), as appropriate. To ensure specific discipline efforts are on target with regard to compliance with policy and criteria and an acceptable level of quality, sub-products are technically coordinated/reviewed before they are integrated into the overall project. To ensure this, PDT members consult with their ITRT counterparts at appropriate points throughout project development to discuss major assumptions and functional decisions, as well as analytical approaches and significant calculations, in order to preclude the possibility of significant comments arising during the final ITR. Each discipline engages in their own counterpart discussions and documents the conclusions/agreements reached in an e-mail message forwarded to the ITRT leader and PM, with copies retained by each participant. It is the responsibility of the PDT members to request these discipline-specific discussions with their ITRT counterparts throughout the project development process in a seamless manner. These discussions do not preclude ITRT members from making additional comments once the entire document is distributed for the formal ITR. All Seamless Reviews must be documented and included with the formal ITR documentation for QC certification.

6.3.3 Conflict Resolution

The ITRT leader coordinates and ensures backcheck of the PDT's product revision efforts based on the ITRT comments. Any comments, which have not been appropriately addressed, are coordinated between the PDT and ITRT for resolution. If resolution is not accomplished at this level, the ITRT leader and PM shall follow the SPK Issue Resolution Process (IRP) to reach a decision in a timely manner. The SPK IRP is defined in Corporate Board Guidance Memorandum #99-3. The purpose of the IRP is to escalate an issue in a timely manner up the chain-of-command for resolution when impasses are reached, in order to minimize adverse impacts on the project development schedule. The ITRT leader, PM, and concerned ITRT and PDT members coordinate with the appropriate technical discipline supervisor (RM), Branch Chief, and/or appropriate Functional Chief for resolution. If necessary to resolve policy issues, SPD and Headquarters (HQ) input shall be requested. The IRP shall also be applied if issues cannot be resolved during Seamless Review sessions between PDT and ITRT counterparts.

6.3.4 Independent Technical Review

An ITR is conducted by the ITRT following completion of the draft and final project development efforts. If the ITR is not accomplished in DrChecks, the ITRT comments are documented in a Memorandum for Record (MFR), which is provided to the PDT. Checklists may be used to guide ITR efforts, as appropriate. Completed checklists shall be attached to the MFR. The ITRT leader prepares a lessons-learned report at the conclusion of the final ITR after backcheck validation has been accomplished, the final project documents are completed, and all review comments are closed. The ITR is complete when the records are placed in the official project files. The District Commander and/or responsible Functional Chief will sign the QC Certification form to certify that the QC process is complete. The ITRT leader prepares a lessons-learned report at the conclusion of the final ITR and dissolves the ITR

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6.3.4.1 ITR of In-House Projects

The ITRT is assembled early in the project development process. Seamless Review sessions begin early and can occur at any time during the project development cycle. Formal, scheduled ITRs normally begin following the completion of the draft project documents. The ITRT provides technical review of the project documents, generates comments, and identifies the technical and policy issues to be addressed by the PDT. The ITRT leader prepares a formal ITR MFR, which documents the process and presents an overview of the ITR findings, specifically addressing major comments/issues. If DrChecks is not used, all of the ITRT comments, consolidated by discipline, are attached as an enclosure. The ITR leader sends the MFR to the PDT. Following receipt of the MFR by the PDT, a formal comment review conference may be held between the ITRT and the PDT, if required. Critical comments and issues are discussed and are intended to be resolved in this conference. If DrChecks is not used, the PDT responds to the ITRT comments through a memorandum to the ITRT leader. The ITRT considers the responses to the review comments and identifies any disagreements requiring resolution. Any issues which cannot be agreed upon between the PDT and ITRT shall be escalated in a timely manner to the PM and appropriate RM for resolution. If necessary, the District's Issue Resolution Process shall be used to resolve difficult issues/impasses; issues may be escalated to the appropriate Branch Chief(s) and primarily responsible Functional Chief for final resolution. The PDT prepares a formal MFR addressing issue resolution decisions, citing decisions reached, organizational elements, and individual(s) responsible for the decision(s). The PDT revises the project documents, as appropriate. Formal responses and revised project documents are submitted to the ITRT for verification and backcheck. The ITRT leader assembles the QC Certification package, prepares a memorandum of the review process, and certifies that the project QC review is complete. The QC Certification package is then forwarded through the PM and appropriate Branch Chief(s) to the responsible Functional Chief for certification concurrence. The Functional Chief recommends certification of the project and forwards the package to the District Commander for formal QC Certification, as appropriate. The ITRT leader is also responsible for ensuring that a lessons-learned report is prepared at the conclusion of the ITR effort. Following completion of the review effort, the ITRT leader dissolves the team and transfers records to the PM for integration into the project files. As appropriate, the ITRT leader and members, in addition to PDT members, should participate in project development in-progress reviews, and technical and milestone conferences with SPD, HQ, and partners/clients.

6.3.4.2 ITR of Contracted Products

The District PM prepares a Quality Assurance Plan (QAP), which addresses the development and review efforts to be performed by the contractor and District staff. This document indicates whether the Corps is to perform a separate ITR in addition to the ITR required of the contractor. The contractor develops and submits their project-specific QCP to the District for review and approval. The contractor shall perform a thorough QC-focused ITR of their work, as cited in their QCP, following the same basic procedures used when a project is developed in-house. The contractor shall include a QC Certification package, signed by a principle/partner in the firm, when forwarding the final project documents to the District. This certification shall serve to witness that all QC procedures required of the contractor have been properly completed. The District performs a Quality Assurance (QA) overview of the contractor's Quality Control (QC) process. QC differs from QA. QC is the process used to ensure that the execution of a task meets the agreed-upon project requirements in accordance with applicable laws, regulations, policies, and technical criteria requirements. QA provides oversight of the QC processes, in order to ensure that cited QC procedures have been followed and to gage their effectiveness in producing a quality product. A small team of experienced in-house staff will normally perform the QA overview effort. As a minimum, one in-house person with significant diverse experience who knows the requirements associated with the project phase under development would review all documents prepared by a contractor to ensure that the product is consistent with project requirements and complies with COE criteria, policy, and guidelines. Under unique circumstances, the District may engage a second contractor to perform the QA role.

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As stated above, in addition to the contractor's QC efforts, the District may choose to perform a separate and complete ITR of the contractor's work for complex, unique, and/or high risk projects, or special cases requiring special expertise to assess and ensure that the project meets acceptable standards as well as the partner's/client's expectations. For example, plans and specifications for construction of a warehouse on a military installation would likely not require a second District ITR, but preparation of a Feasibility Study for a multipurpose dam project likely would require the second District ITR. If a contractor's work is integrated into a larger in-house effort, this work needs to be incorporated into the District's ITR QC process of the total project, to assure the work is consistent with the rest of the project development effort.

6.3.4.3 ITR Comment Structure

ITRT comments shall contain the following six elements, to the maximum extent practicable:

a. A clear statement of the concern, including information on the deficiency or incorrect application of policy, procedures, or criteria;

1. The basis of the concern as it relates to law, policy, guidance, criteria, or partner/client requirements;
2. Significance of the concern, and how the concern could affect the technical or decision-making process;
3. The specific actions needed to resolve the concern;
4. Specific Discipline required for resolving the concern (i.e., Civil, Architectural, Structural, Mechanical, Fire Protection, Electrical, etc.)

Note: This is required information in DrChecks in order to input a comment, so that the functions listed above can be done (i.e., sorting comments into subsets by discipline).

5. Specific Location of where the change needs to be made (i.e., Drawing number, Detail Number, Specification Section, document, page and paragraph numbers.

Note: This is required information in DrChecks in order properly identify the location of concern in the review documents.

6.3.5 ITRT Roles and Responsibilities

6.3.5.1 ITRT Leader

a. The ITRT leader reviews both the Project QCP and PMP for any special or unique conditions and coordinates review of documents and other materials identified in the QCP. During the review process, the ITRT leader will

1. Encourage all ITRT members to develop substantive comments;
2. Verify that each comment is complete and contains all six comment structure elements;
3. Raise "red flags" quickly when problems arise;

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4. Minimize redundancy among ITRT comments, consolidating or deleting duplicate comments as appropriate;

5. Apply a standard of consistency to the comments;

6. Ensure that the review comments are substantive, constructive, and relevant to the project; and

7. Encourage all ITRT members to actively support Seamless Review activities throughout the project development cycle.

b. The ITRT leader will not modify technical comments. Only clearly duplicated comments will be consolidated or eliminated (closed). If DrChecks is not used, comments and suggestions related to typographic errors, grammar, format, and stylistic enhancements are suggested to be consolidated and provided as a separate section of the comment set placed at the back of the ITR comment documentation package[SPF11].

c. In addition, the ITRT leader

1. Ensures continuing backcheck of PDT correction efforts until full resolution of any previously unresolved issue is accomplished;

2. Prepares the ITR summary memorandum, crosschecking project requirements, major assumptions, and other critical/sensitive concerns before addressing in the ITR memorandum;

3. Assembles the QC certification package for approval signature by the Functional Chief or the District Engineer, as appropriate;

4. Maintains the in-progress ITRT files documenting the ITR process, organizing the Seamless Review e-mail messages or memoranda, and maintaining records of disputed technical review comments, including resolution of decisions. This also includes aggregating and compiling all ITR comments if DrChecks is not used.

d. At the end of each major milestone, the ITRT leader ensures that appropriate ITRT documentation is transmitted to the PM for placement in the official project file. Where appropriate, the ITRT leader presents the ITR activities and findings to date at milestone conferences, Issue Resolution Conferences (IRC), or other formal presentations. These presentations will describe the activities of the ITRT and identify any technical and/or policy issues. After conclusion of the final ITR, the ITRT leader will prepare a lessons-learned memorandum to discuss the technical, policy, communication, and coordination problems that arose during the review process. This document shall discuss ways to avoid similar problems in the future.

e. The ITRT leader functions primarily as a coordinator/facilitator for reviews of large and/or complex projects. For such projects, the ITRT leader should ensure proper coordination, overview, comment resolution, and appropriate level of content and detail in the ITR summary memorandum. On smaller or less complex projects, the ITRT leader will also perform the technical review for a specific discipline in addition to the above. If necessary, the ITRT leader will prepare and submit to the PM a written request for extension of review time needed by ITRT members. At the request of the PM or Functional Chief, the ITRT leader will attend PDT meetings in an advisory role concerning ITR issues; however, the ITRT leader will not participate as a member of the PDT. The ITRT leader should also participate, as requested, in informal PDT in-progress reviews and milestone conferences.

6.3.5.2 ITRT Members

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ITRT members develop meaningful discipline-specific comments, which are expressed in a clear and concise manner. Each comment shall include a clear statement of the concern, the technical basis for the concern, why it is significant, and specific actions necessary to resolve it. Comments must be labeled with the discipline required to incorporate the change and the specific location of where the change needs to be made (see paragraph on ITR Comment Structure for comment format details).

ITRT members shall participate in the Issue Resolution Process in a professional manner, seeking the best possible solution, and conduct backchecks to ensure that resolved issues have been appropriately addressed in project documents. If DrChecks is not used, all ITR issues and concerns and resolutions must be documented on the original comment. The use of checklists to facilitate the technical review effort is encouraged. ITRT members shall fully participate with PDT counterparts in the Seamless Review process.

It is important to recognize that changes in ITRT members at any point, especially late in a project development effort, can generate problems (especially during final review). A new ITRT member who has not followed the project development effort through the Seamless Review sessions may not fully agree with all the prior PDT/ITRT counterpart consensus decisions regarding criteria interpretation, assumptions, analyses conducted, etc. In such a case, the RM for the impacted discipline shall immediately be engaged to resolve the situation. If unsuccessful, the District's Issue Resolution Process will be followed.

6.4 Quality Control Plans/Quality Assurance Plans Status Reporting

Programs and Project Management Division is responsible for providing the status of QCP and Quality Assurance Plans (QAP) for quarterly Command Management Reviews (CMR). Assigned District staff elements shall update the status listing of QCPs and QAPs and provide this information to the PPMD POC at the date requested, who in turn, compile the data and provides to RMO. RMO provides the data to the District Engineer who in turn provides necessary information to SPD.

6.5 Quality Control/Quality Assurance Certification

Functional Chiefs shall certify that the quality control (QC) and quality assurance (QA) process for each product or service has been completed and that all identified ITR have taken place and that all technical issues have been resolved. All stand-alone project documents (i.e., decision documents, implementation documents, plans and specifications, RFP, etc.) must receive a QC Certification prior to proceeding to the next phase of a Project. This process ensures that the responsible individuals at all levels of the District are aware of and attest to the fact that all appropriate QC procedures associated with Product Development and Technical Review have been completed. Further, the signature chain associated with each QC Certification package ties the responsibility for project/product quality to all those recommending and/or certifying the documents. The District Engineer as the certifying official signs most QC Certification packages. On occasion, this authority can be delegated to Functional Chiefs.

A QC Certification package is composed of several signature sheets consistent with the type of document being certified. The final project document, a compendium of all Seamless Review memoranda, accompanies the QC Certification sheets when being routed for signature to allow for review by the intended signatories. P&S documents include a BCOE Review completion statement signed by the Chief, Construction Operations Division. ITRT comments, PDT responses to ITRT comments, and ITRT backcheck statements shall also be included if DrChecks is not used.

See [Appendix F](#) for the recommended SPK standard QC Certification forms to be used for the following general categories of documents:

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- (1) Plans and Specifications developed by In-House staff
- (2) Plans and Specifications developed by an A-E Firm
- (3) Stand-Alone documents (Decision, Implementation, or Technical documents) developed by In-House Staff
- (4) Stand-Alone documents (Decision, Implementation, or Technical documents) developed by an A-E Firm or Service Firm

7.0 CORRECTIVE AND PREVENTIVE ACTIONS

7.1 Corrective Actions

The following are specific activities that identify the need for corrective action.

- Construction site visits
- Customer outreach calls/surveys
- Review of nonconforming products identified in quality control (QC) reviews to determine their applicability to the Lessons Learned system.
- Review of construction contract modifications, which were caused by design deficiencies
- Design/Construction Evaluation Teams
- ITRT repetitive comments

The following are examples of corrective actions:

- Creation of Lessons Learned.
- Sharing of lessons learned with other Corps elements.
- The [Criteria Change Request](#) process for requesting guidance/criteria correction or change.
- Revision of procedures, work instructions, criteria, standard details, etc.

The requirements of [EP 715-1-7](#) shall be implemented for each construction contract modification necessitated by design deficiencies.

It is recognized that the need for corrective action will not always have the same degree of urgency. Therefore, the Project Manager (PM) must decide whether or not immediate action must be implemented or can the issue be saved and discussed at the final partnering meeting for design or construction. Discussion of lessons learned will be an agenda item at these meetings.

7.2 Preventive Action for Products Developed In-house

For each project deliverable developed, a review of the Lessons Learned shall be initiated. Then a Quality Control Plan (QCP) shall be developed. The QCP shall describe all quality control activities and identify individuals who will be responsible for accomplishment of each activity. The PDT and PM develop the QCP before actual design is initiated. It identifies the full spectrum of quality control efforts.

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7.3 Preventive Action for Products Developed by A-E Firms

For each project deliverable developed by an A-E or consultant, a quality assurance plan (QAP) shall be developed. The quality assurance plan will describe all oversight activities and identify individuals who will be responsible for accomplishments of each activity. The QAP will define the requirements of the A-E's QCP and will include procedures to insure the QCP is followed. The QAP does not directly control or correct nonconforming products, but it functions to prevent their occurrence by assuring that quality control procedures are appropriate and are being followed. Development of the QAP is the responsibility of PM and is accomplished before actual design is initiated. The QAP identifies the full spectrum of quality assurance activities, and who will perform these activities, when, and where.

After completion of the QAP, the first activity performed by the PM is the review of the A-E prepared QCP. The plan is reviewed to insure it is adequate for the intended product and its level of detail is commensurate with the level of risk and/or importance of the product being developed.

As the design is progressing, the PDT, ITR Team and the BCOE team will maintain a continuing dialog to prevent design deficiencies resulting from confusion concerning project requirements and criteria.

The PM and BCOE team will oversee A-E compliance with the QCP. As necessary, the PM and other district technical personnel may attend A-E review meetings and provide quality assurance audits at the A-E's office as appropriate, and require immediate correction of all deviations from the approved QCP. If the QCP is found to be inadequate, the plan will be upgraded as required.

7.4 Lessons Learned

Lessons learned systems for Engineering Division are described in *EQP 14-02, Lessons Learned Program for Civil Works Projects*, *EQP 14-03, Lessons Learned Program for Military Projects*, and *EQP 14-04, Lessons Learned Program for Hazardous, Toxic, and Radioactive Waste Projects*. PM's shall access the systems when developing project Scopes of Service/Scopes of Work for like projects to avoid repetitive deficiencies. A PMBP Lessons Learned Program has been put in place in IMO on the Intranet to capture tips regarding use of the chosen AIS tools, PROMIS/MS Project/CEFMS/Local Database (MS Access). PM's shall make note of new tips as they are made aware by IMO.

7.5 A-E Performance Evaluations

A-E performance evaluations shall be prepared in accordance with HQUSACE guidance, including interim evaluations, if necessary, and final evaluations. Evaluations shall be provided to Engineering Division who will enter them into the A-E Contract Administration Support System (ACASS).

8.0 QUALITY TOOLS

8.1 PMBP User Manual

All personnel shall familiarize themselves with and follow the PMBP Standard Operating Procedures, Corporate Board Memos and User Guides for every project to provide consistency in management processes and development of project data. All of these documents are available via the Sacramento District Home Page.

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8.2 Checklists

PM's shall utilize the HQUSACE checklists and, to the extent possible, Model Agreements for development of Project Cooperation Agreement (PCA) and Preconstruction Engineering and Design (PED) Agreement packages. QC checklists can be helpful to the PDT and reviewers to ensure that appropriate considerations are systematically addressed. QC checklists may be developed and used during the planning, design and review processes. Once developed, checklists need to be continually revised as needed by changing policies and requirements, but must never become a substitute for professional judgment and experience. Checklists are not intended to be comprehensive and should be modified to fit specific requirements of each discipline.

8.3 DrChecks

ER 1110-1-8159, Engineering and Design, DrChecks (Design Review and Checking System), has been issued as the Corps' official project review, lessons learned and feedback system. All new project reviews for implementation and design documents will be accomplished using DrChecks. DrChecks may also be used for decision documents (such as feasibility phase and reevaluation reports) if the ITR Team Chair determines that the use of DrChecks would be efficient.

8.4 Training.

Management will ensure that all personnel are properly trained to perform their assigned duties through use of appropriate PROSPECT, other Government, and Non-Government training.

8.5 PDT Site Visits

PDT's will visit study/project sites prior to development of the Scope of Services/Scope of Work to fully understand customer concerns and requirements. PDT's are encouraged to visit project construction sites to interact with construction personnel and gain insight into design/construction issues for use in developing future study/design Scopes of Service/Scopes of Work.

9.0 DISTRICT QMP PREPARATION, REVISION AND ADMINISTRATION

The District Engineer and respective Division Chiefs are responsible for ensuring that QMP are followed and maintained up to date for applicability.

To ensure that the requirements in this plan are met, PPM Division will review on a yearly basis, the District QMP with all appendices and discuss them with their respective staff for applicability and compliance.

Annual revisions will be initiated by a message from PPMD in the month of July to allow revisions to be completed prior to the end of the FY and prior to Command Assistance Visits (CAVs). Annual updates of the District QMP will be submitted to SPD for review and approval.

This QMP shall be revised and administered in accordance with the procedures outlined in *Engineering Quality Procedure (EQP) 05-01, "Procedure for the Preparation and Administration of Procedures"* for consistency purposes.

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9.1 QMP Components and Content

All QMP shall carry the same basic components, as follows:

1. **Purpose** - define why the QMP is being created and to specify the objectives.
2. **Scope** - define the applicability of the document.
3. **References** - identify any other documents related to the activity described within the QMP.
4. **Definitions** - define words or actions that are not universally understood or that may have a specific interpretation in the QMP.
5. **Policy** - identify any policy guidance specific to the individual Division QMPs.
6. **Quality Management** - describe the activities involved. Identifies who does what, when, and where, and may describe how and why the activity is carried out.
7. **Corrective and Preventative Action** - describe the process to discover, correct and prevent non-conformities for each program element.
8. **Quality Tools** - describe specific techniques for implementing quality control and quality assurance.
9. **Records** - describe the records created by the QMPs and who is responsible for their identification and maintenance.

The word "None" will be inserted if no information applies to a particular component, for example, if there are no References, Definitions, or Records.

9.2 Document Control and Distribution

An electronic copy of approved QMPs and revisions shall be sent to each Division, attached to e-mail. All revisions are provided to Engineering Division Engineering Technology and Specifications (ET&S) Section to post on the Internet and link to the Sacramento District Home Page.

10.0 RECORDS

PPMD will establish and maintain files for the District QMP. The files will contain the following:

- a. Original hard copy of the District QMP and each Division appendix and revisions.
- b. Signed copy of transmittal memorandum.
- c. Hard copy of the master list of QMPs.

PPMD will also maintain District QMP PDF files on the Internet.