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	Resource Management USACE QUALITY MANAGEMENT SYSTEM	
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DEPARTMENT OF THE ARMY ER 5-1-14
U.S. Army Corps of Engineers
CERM Washington, D.C. 20314-1000

Regulation
No. 5-1-14 30 April 2009

Resource Management
USACE QUALITY MANAGEMENT SYSTEM

1. Purpose. This regulation establishes U.S. Army Corps of Engineers (USACE) policy and doctrine for development and implementation of a comprehensive quality management system (QMS) focused on the achievement of customer satisfaction and continual improvement. The QMS applies to the management of all USACE work and integrates and facilitates the implementation of existing project management, quality management, quality assurance/quality control (QA/QC), and strategic planning processes.

2. Applicability. This regulation applies to all work performed by USACE at all echelons.

3. Distribution Statement. Approved for public release; distribution is unlimited.

4. References.

a. AR 5-1, Total Army Quality Management.

b. USACE Engineer Inspector General (EIG) Inspection Report, May 2000, Quality Management in the Program and Project Management Business Process.

c. USACE Engineer Inspector General (EIG) Inspection Report, March 2004, Quality Management for Civil Works Planning.

d. ER 5-1-11, USACE Business Process.

e. ER 5-1-15, Strategic Management Process and System.

f. ER 1110-1-12, Engineering and Design Quality Management.

g. ER 25-1-8, The Community of Practice (CoP) in the U.S. Army Corps of Engineers.

h. CERM Memorandum, 10 Sep 08, subject: Deployment of the USACE Quality Management System (QMS).

i. ISO 9001, *Quality management systems – Requirements* (International Organization for Standardization).

j. USACE 2012: Aligning the U.S. Army Corps of Engineers for Success in the 21st Century.

k. USACE Learning Organization Doctrine: Roadmap for Transformation.

l. Department of Defense Directive, 5010.2, DoD-Wide Continuous Process Improvement (CPI)/Lean Six Sigma (LSS), May 15, 2008.

5. Definitions.

a. Enterprise Standards. Enterprise Standards are standard business practices and other operating procedures, recognized by Headquarters, USACE (HQUSACE) for application across the Corps of Engineers. The responsible functional offices/CoPs define the minimum requirements or default conditions that are to be consistently implemented throughout USACE.

b. Quality Management. Quality management refers to all activities of the overall management function that determine quality policy, objectives, and responsibilities, and implementation of those activities by means of quality planning, quality control (QC), quality assurance (QA), and continuous improvement (CI), within the context of a QMS.

c. Quality Management System (QMS). A QMS is a formalized system that defines the structure, authority, responsibilities, resources, planning, and documented procedures needed to implement an organization's quality policy.

d. USACE Quality Management System (USACE QMS). The USACE QMS is the overarching management system for all services, work products and projects provided or developed. It integrates existing USACE project management, quality management, and strategic planning and reporting practices, within a structural context based on "Plan-Do-Check-Act" (PDCA) concepts and widely recognized international standards focused on the achievement of customer satisfaction and continuous improvement.

e. Regional, District, Center, Lab, and High Performing Organization (HPO) QMS Plans. The QMS Plans are subordinate planning documents. Regional, District, Center, Lab, and HPO QMS plans share the same benchmarks for structure and content as the USACE QMS and support USACE Enterprise Standards and the other planning and procedural requirements established by this ER.

f. USACE QMS Portal. An automated information system (AIS) designed to facilitate user access to the Enterprise Standards and other QMS resources and references, making the best possible use of commercially available software tools and

existing USACE information-sharing platforms. Access to the USACE QMS Portal is available at: https://kme.usace.army.mil/CE/QMS

g. National Quality Program Manager (NQPM). Within the Resource Management Directorate the NQPM serves as the primary advocate for the USACE QMS and Enterprise Standards within HQUSACE and for adaptation by subordinate Regional, Center, District, Lab, or HPO. The NQPM ensures that the USACE QMS and Enterprise Standards are implemented as a default standard or used as a primary resource in the development or adaptation specific QMS and supplemental supporting processes.

h. Project Management Business Process (PMBP): PMBP is the fundamental method used to deliver quality projects at all echelons of USACE. The heart of PMBP is results-focused teamwork, drawing on the diverse resources of USACE worldwide to assemble strong multi-disciplinary teams, unconstrained by geography or organization boundaries, to best meet the customer's needs and the national/public interests. Three imperatives govern the successful completion of projects:

(1) One project, one team, one project manager (PM);

(2) Manage all projects with a project management plan (PMP); and

(3) The project delivery team (PDT) is responsible for project success.

6. Availability. This ER is available at the following web address: http://www.usace.army.mil/publications.

7. Policy.

a. Background. USACE has sought the achievement and/or assurance of quality in the services, work products and projects provided to our customers for many years, using a variety of management approaches. Quality management planning requirements for specific programs and projects have been established as integral elements of the Program or Project Management Plans (PgMPs/PMPs) required by the USACE Project Management Business Process (PMBP). QA/QC requirements have been established for specific types of services (e.g., analytical laboratory and construction monitoring/ management services) or entire functional areas (e.g., Engineering and Design). In recent years, individual Regions, Centers, and Districts have established more comprehensive QMSs based on ISO 9001, *Quality Management Systems – Requirements*. These efforts have been successful in many respects and are laudable in that they underscore fundamental USACE values, cultural imperatives, and organizational commitments. However, for USACE to achieve its 2012 vision and goals as a Learning Organization, as well as to minimize potential variability in the performance experienced by USACE customers, a more comprehensive, enterprise-wide approach to quality management is required that institutionalizes management commitment for continual improvement and the achievement of customer satisfaction across the entire USACE organization.

b. Quality Management Policy and Doctrine. USACE is fully committed to providing services and work products that meet or exceed customer expectations and will substantiate and enhance our reputation as the premier public engineering organization. USACE establishes standard program and project level business and quality management processes for implementation across all echelons within the context of a comprehensive, enterprise-wide QMS that is focused on continual improvement and the systematic achievement of customer satisfaction. The USACE QMS facilitates:

(1) Institutionalization of the USACE "One Corps" doctrine;

(2) Transformation of USACE into an increasingly more capable and effective organization;

(3) Achievement of full effectiveness in the implementation of the USACE PMBP;

(4) Execution of the strategic planning and reporting processes described in ER 5-1-15, Strategic Management Process and System, across all echelons; and

(5) Achievement of the overall quality objectives and mission goals established by the current USACE Campaign Plan.

c. In addition, the USACE QMS enables USACE to continually adapt and systematically refine its management practices to meet the challenges of changing mission objectives, organizational imperatives, and customer needs. In order to achieve this adaptability and flexibility, USACE provides its workforce the resources, infrastructure, training, and necessary authority to fulfill our customers' quality expectations, in full compliance with applicable legal, ethical, health and safety, environmental and financial management regulations and directives. The USACE QMS establishes and documents effective change management processes to ensure that the USACE QMS remains relevant for the services and work products provided to USACE's customers. See Appendix A and the USACE QMS Operating Processes.

d. In order for the USACE quality policy and doctrine (and the means for achieving associated goals) to be readily communicated to all echelons, the USACE QMS is supported by an Automated Information System (AIS) designed to facilitate user access to all necessary and current resources and references. The USACE QMS platform will also be regularly evaluated by internal audit and management review processes, and updated as necessary to ensure its continued suitability, adequacy, and effectiveness with respect to the objectives and requirements of USACE's current mission.

8. USACE Quality Management System - Design Goals. The USACE QMS is designed to:

a. Enable alignment of quality objectives and establish common performance standards for all USACE Regions, Districts, Centers, Labs, and HPOs, with the intent of minimizing or eliminating variability in business practices and operating standards and

hence performance or work product or service quality that may be experienced by customers working with multiple USACE organizations;

b. Recognize and maintain the organizational value, investment, and process knowledge represented in existing QMSs that have been established by individual Regions, Districts, Centers, Labs or HPOs;

c. Provide a default QMS that can be readily implemented at the Regional, District, Center, Lab, or HPO level, thereby minimizing costs of development, deployment, and implementation, for USACE organizations that have not yet developed or do not have ready access to appropriate QMS resources;

d. Recognize the value of existing best management practice (BMP) contributions and the institutional knowledge held by individual USACE Regions, Districts, Centers, Labs, HPOs, and functional offices/CoPs;

e. Institutionalize and disseminate BMP resources by means of Enterprise Standards that integrate existing USACE requirements and guidelines, are designed to apply across all echelons, and are vetted by appropriate functional offices/CoPs; and

f. Provide a flexible management structure in which additional Region-, District, Center, Lab, or HPO level plans, procedures, or instructions may be developed and implemented, as necessary to improve organizational efficiency and better ensure the achievement of customer satisfaction.

9. USACE QMS – Description.

a. This framework (see Figure 9-1) is a comprehensive, organizational management system structure that is focused on continual improvement and the achievement of customer satisfaction. QMS contents are derived from ER 5-1-11, U.S. Army Corps of Engineers Project Management Business Process; the underlying requirements of AR 5-1, Total Army Quality Management; other USACE requirements or guidelines including USACE Engineer Inspector General (EIG) Reports, references (b) and (c); and ISO 9001 based organizational management standards.

(1) In order to achieve the design goals set forth in Section 8, the USACE QMS includes business processes, practices and requirements (i.e. Enterprise Standards) that shall be consistently implemented throughout all USACE Regions, Districts, Centers, Labs, and HPOs. The Enterprise Standards are quality-infused, performance-based processes which assist USACE in the delivery of quality products, projects and services. Assurance of meeting our customers' requirements and providing customer satisfaction is attained through Quality Assurance activities and management oversight as well as regular monitoring of the effectiveness of the Enterprise Standards. These assurance activities drive follow-up activities, including Continuous Improvement actions based on review of Enterprise Standards or performance results, Workforce Education based on Enterprise Standard usage and effectiveness, and development and implementation of

Strategic and Operational Guidance Goals, also based on performance results. These follow-up activities result in improved standards and revised guidance which are fed back into the base of Enterprise Standards, revised or new performance targets, and a better educated workforce to accomplish our missions in a more effective and efficient manner.

(2) ER 5-1-11 establishes the fundamental requirements for the USACE PMBP, which applies to all echelons, establishes a general methodology for delivering work products and services to USACE customers with a consistent and appropriate level of quality, and requires careful consideration of customers' requirements and interests throughout the project life cycle. ER 5-1-11 also establishes business process principles and imperatives, and commits USACE to use best practices and seek continuous improvement. To facilitate this goal, the structure and content of the USACE QMS is therefore benchmarked against ISO 9001, *Quality management systems – Requirements* (International Organization for Standardization), an international consensus standard for QMS design widely recognized as a best management practice (BMP) by both government and industry. ISO 9001 addresses a series of management focus areas that encompass the principles and imperatives of ER 5-1-11 and collectively comprise the basis for QMS development, implementation, and continual improvement. The primary clauses or focus areas of the standard comprise a closed-loop management system model that is driven by customer communications and performance feedback and encompasses the "Plan-Do-Check-Act" (PDCA) concepts portrayed in Figure 9-1 below. The integration of PDCA concepts within an ISO-based QMS framework with existing USACE management practices is described in Appendix B.

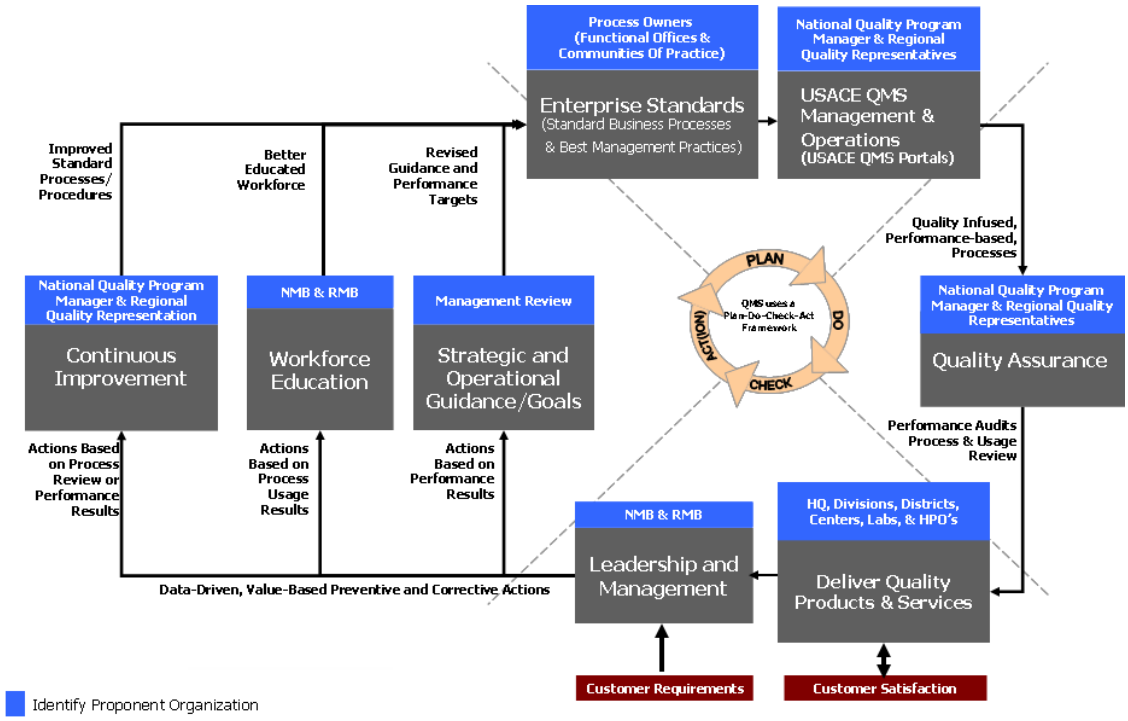

Figure 9-1: USACE QMS Framework

b. QMS Document Hierarchy. The USACE QMS shall be readily implemented by Regions, Districts, Centers, Labs, or HPOs. Enterprise Standards shall make best use of existing USACE planning and procedural resources and recognized BMPs.

(1) It is recognized that in some circumstances, individual Regions, Districts, Centers, Labs, or HPOs may require additional organization specific procedures or instructions to increase organizational efficiency or otherwise add value in the services and work products they provide to USACE customers. The USACE QMS is structured to allow supplemental, augmentation, or additional processes, subject to approval by the affected organization, and establishment of appropriate controls over document preparation, updates, and distribution consistent with the USACE QMS.

(2) It is also recognized that a number of USACE Regions, Districts, Centers, Labs, and HPOs have established QMSs also based on the requirements of ISO 9001 or other business management systems. The USACE QMS therefore is designed to incorporate these subordinate QMSs. Affected Regions, Districts, Centers, Labs, and HPOs shall conduct a review of their system documentation against the minimum requirements of the USACE QMS and adapt or adjust their system documents as necessary to ensure consistency with the minimum requirements described by this ER and the Enterprise Standards.

(3) Subordinate QMS documents include management plans or equivalent documents that describe the overall contents and structure of the subordinate QMS, its relationship to the USACE QMS, and specific processes for ensuring that consistency is maintained. Supplemental guidance on USACE QMS content that may be used in the development of such documents is provided in Appendix C.

c. QMS Certification. HQUSACE has adopted ISO 9001 as a benchmark for the USACE QMS' operational consistency, transparency, and organizational benefits, and particularly for its overall focus on continual improvement and the achievement of customer satisfaction. Regions, Districts, Centers, Labs, or HPOs may choose to undertake third-party certification, provided that their organization-level quality management policy and procedure documents are consistent with the default standards established by the USACE QMS as previously described.

d. Incorporation of Other USACE Requirements. Enterprise Standards shall be designed to facilitate the incorporation of current approved versions of other USACE guidance documents and requirements or selected elements thereof, as necessary to support the purposes of the USACE QMS. These documents may include final approved work products from Lean Six Sigma (LSS) exercises, functional office/CoP led process refinement efforts, other USACE process improvement initiatives, and other USACE regulations, guidance or procedural resources. Figure B-1 in Appendix B presents an influence diagram that illustrates how current USACE management practices may be integrated into the USACE QMS by the development of appropriately scoped Enterprise Standards.

e. QMS Portal. In order to ensure that current approved versions of such documents are made available to the USACE workforce, the documents that comprise the USACE QMS are controlled and distributed across all USACE Regions, Districts, Centers, Labs, and HPOs by means of a QMS Portal that facilitates user access and document change control functions. The QMS Portal is designed to provide ready access to Enterprise Standards and other supporting documents. An Enterprise Standard shall be developed that defines requirements for document development, review, approval and controlled via the QMS Portal. Individual Regions, Districts, Centers, Labs, or HPOs may develop supplemental procedures, or instructions; but they must be consistent with the Enterprise Standard.

10. Quality Management Organization. HQUSACE has assigned responsibilities for overseeing the quality management functions represented by this ER to the Director of Resource Management (DRM), with responsibilities delegated to the National Quality Program Manager (NQPM). An organizational chart depicting the quality management organization and discussions of the quality management responsibilities of key personnel are provided in Appendix D.

11. Management Commitment. USACE is committed to achieving our 2012 vision and our goals as a Learning Organization. USACE also seeks to minimize and ultimately eliminate any variability in the quality of USACE services and work products that may be experienced by USACE customers. The establishment of an effective, comprehensive USACE QMS based on continual improvement concepts and the achievement of customer satisfaction is critical to our being able to reach these goals. Management at all echelons shall therefore lead, encourage, and otherwise support the implementation of the various plans, procedures, and processes that comprise the USACE QMS. By actively engaging in the processes so established, management shares in the responsibility and accountability for the achievement of customer satisfaction and the continual improvement of USACE's operational and organizational performance.

FOR THE COMMANDER:

S. L. Hill

STEPHEN L. HILL
Colonel, Corps of Engineers
Chief of Staff

4 Appendices
Appendix A - Guiding Principles: Development, Maintenance, & Management of Enterprise Standards
Appendix B - Influence Diagram: Integration of Existing Management Practices in USACE QMS
Appendix C – Supplemental Considerations for USACE QMS Design
Appendix D - Quality Management Organization and Responsibilities

APPENDIX A

Guiding Principles: Development, Maintenance, and Management of Enterprise Standards

Background: The HQUSACE functional offices/Communities of Practice (CoP) leaders are ultimately responsible for the development, maintenance, and management of the Corps Wide USACE Enterprise Standards. The details are documented within the QMS (Quality Management System) Operating Processes under QMS121 which is maintained within the USACE QMS. The Enterprise Standards are the minimum requirements to be implemented Corps wide to increase efficiency, effectiveness and quality products working virtually and seamlessly.

1. Functional Office/CoP General Guidance. Each primary functional office/CoP or develops specific guidance and direction on how they will develop, maintain, and manage specific Enterprise Standards processes and procedures. They will also support other functional office's/CoP's processes when they are touched by or affected by those Enterprise Standards or the affected functional office/CoP.

a. Process Champion. The Process Champion is the primary office or sub-office within each functional office/CoP that is responsible for a particular process or procedure.

b. Point of Contact. The person(s) appointed by the process champion to oversee and provide direction for an individual process or procedure.

c. Author. The author is the person(s) who have been appointed or accepted the responsibility for writing and updating an individual process or procedure. These person(s) are considered subject matter expert(s). The author can also be the point of contact.

2. Development of Enterprise Standards. New Corps-wide processes or procedures can be initiated by the individual functional offices/Communities of Practice (CoP) process champions, points of contact, or by the field. The intent is that there are many avenues for new processes to be identified and developed but it is the functional office/CoP with overall responsibility to approve for implementation. Each process or procedure identifies the functional office(s)/CoP(s) that are affected or require action to be taken.

3. Maintenance of Enterprise Standards. The maintenance of processes or procedures uses a continual improvement process (Plan-Do-Check-Act) based on ISO 9001 requirements for a QMS. The maintenance and updating incorporates and interfaces with USACE Lean Six Sigma initiative and USACE Enterprise Lessons Learned. Each functional office/CoP will document the maintenance and provide the required resources to support continuous process improvement.

4. Management of Enterprise Standards. The overall management of these Corps wide standards is documented within the USACE QMS. The National Management Board (NMB) provides general oversight and direction. Director of Resource Management (DRM) has ultimate responsibility for the implementation, operation, and control over the USACE QMS and Enterprise Standards. The National Quality Program Manager (NQPM) reports to DRM and controls publishing processes or procedures and conducts Management Reviews of USACE QMS operations. The NQPM oversees and provides direction to sub-QMS sites and the Enterprise Improvement Steering Committee. The Enterprise Improvement Steering Committee is made up of representatives from the Regions, Districts, Centers, Labs, and HPOs. The Enterprise Improvement Steering Committee representatives are appointed by local organizations. The details on management of the QMS, Enterprise Improvement Steering Committee, and Enterprise Standards are documented within the USACE QMS.

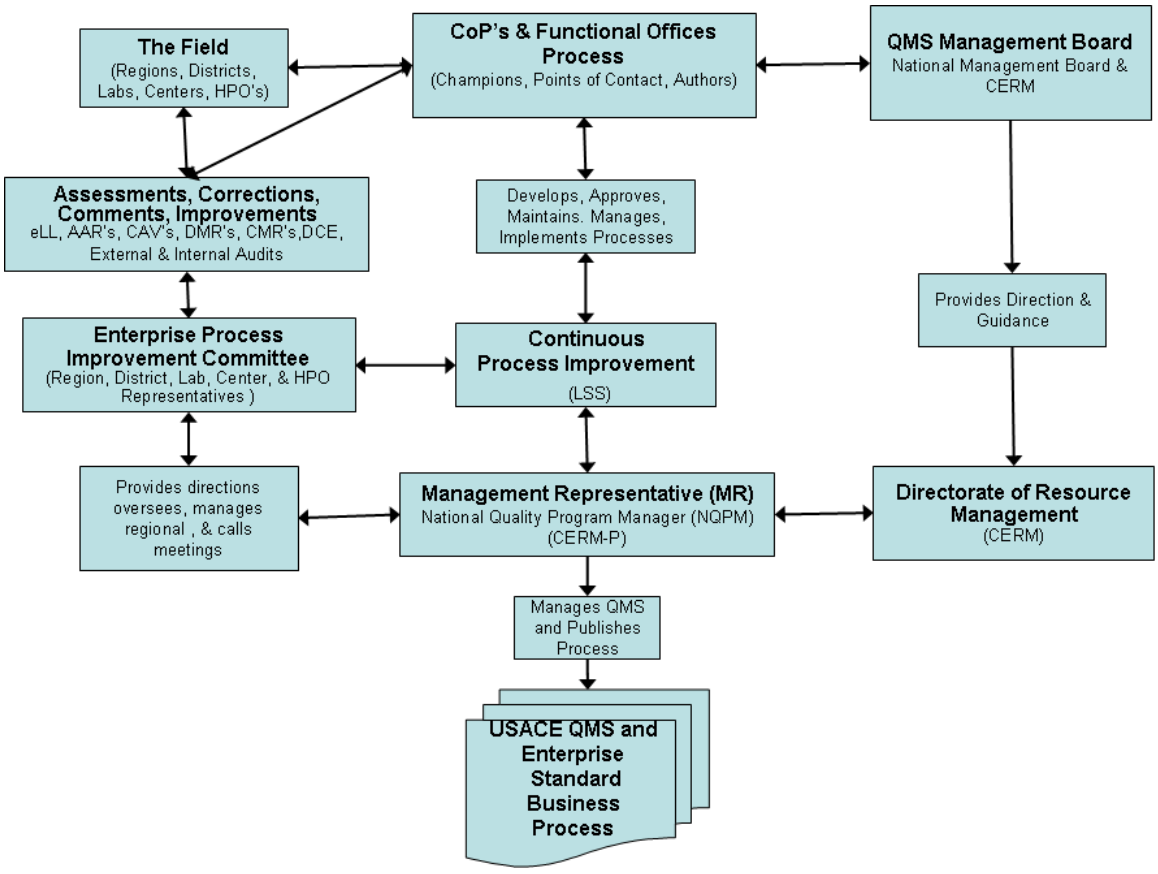

Figure A-1: USACE QMS Process Development & Improvement Diagram

APPENDIX B

Integration of USACE Management Practices
In Continuous Improvement/Customer Satisfaction – Based QMS

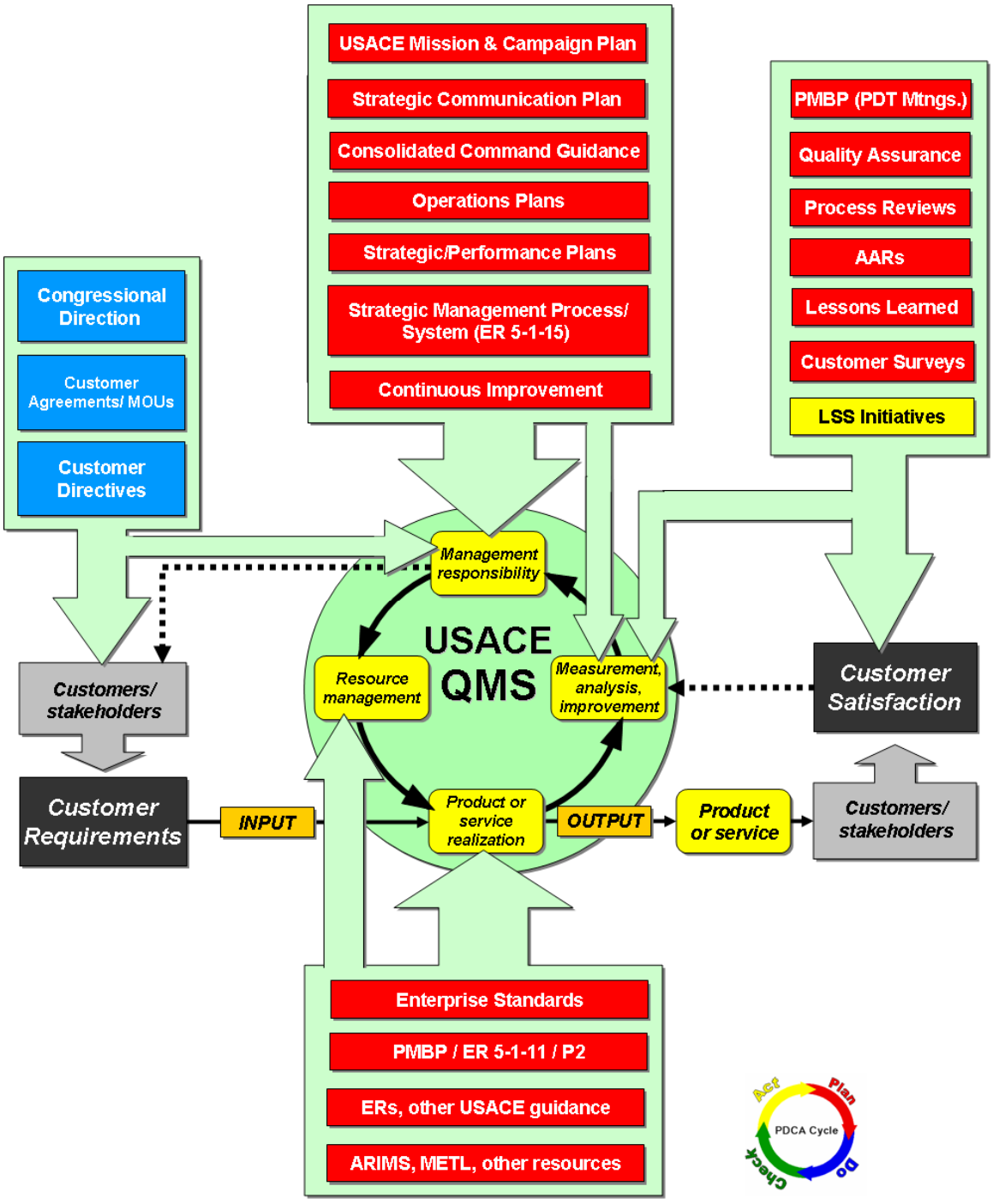

Figure B-1: USACE QMS Influence Diagram

Background: The continual improvement cycle represented in the center of Figure B-1 corresponds to the conceptual model of a process-based Quality Management System (QMS) after Section 0.2 of ISO 9001:2000, which encompasses traditional Plan-Do-Check-Act (PDCA) methodology. The four major QMS elements or phases that constitute the continual improvement cycle are summarized as follows, along with a discussion of their relationship to and integration with key U.S. Army Corps of Engineers (USACE) management practices.

1. Management Responsibility. Within the continual improvement process, management responsibility includes: establishing quality policy; undertaking management reviews of organization and QMS performance; ensuring availability of budgetary, personnel and other resources; providing leadership in the enhancement of customer satisfaction; ensuring adequacy of quality planning processes; and the establishment of appropriate quality objectives for the organization, based on strategic planning directives or upper-echelon guidance. As depicted in Figure B-1, this element of the USACE QMS is influenced by a number of constraints and information sources, including Congressional directives, the agreements or memoranda of understanding (MOU) that USACE enters into with specific customers, and other directives or requirements that originate with USACE customers. This element is also heavily influenced by multiple tiers of strategic planning requirements and the strategic management system/process described in ER 5-1-15; the reporting component of these requirements must also be considered in the measurement, analysis, and improvement features of the USACE QMS.

2. Resource Management. The resource management element of the continual improvement process includes provision of a capable workforce, appropriate distribution of workloads, the implementation of training programs and resources as necessary to maintain workforce competence relative to customer requirements, and the necessary infrastructure and safe work environment necessary for the delivery of work products and services that meet customer requirements. This element of the USACE QMS is supported by a number of processes drawn from the Project Management Business Process (PMBP), as well as Mission-Essential Task List (METL) and other USACE guidelines and processes that support the fielding of a workforce with all the training and capability necessary to properly implement the USACE QMS and execute projects for USACE customers.

3. Product or Service Realization. This element of the continual improvement process incorporates all aspects of the planning and delivery of work products and services, including definition of customer requirements, acquisition, maintenance of customer communications, design and development, control of production/delivery processes, maintaining the quality and integrity of customer-furnished materials and equipment, and ensuring the accuracy of measuring and test equipment. The bulk of the processes required by the PMBP and described in the Enterprise Standards support this element of the USACE QMS, as well as AR 25-400-2, Army Records Information Management Systems (ARIMS), and ERs and other guidance documents that control or support the delivery of engineering, construction, environmental, real estate management, and other services to USACE customers.

4. Measurement, Analysis, and Improvement. This element of the continual improvement process includes determination of customer satisfaction requirements and satisfaction status, internal auditing, monitoring and measurement of work product or service quality, control of non-conformances and corrective/preventive action, analysis of quality management data, and management review. This element is supported by the Project Delivery Team (PDT) process established by the PMBP (which among its other functions provides an ongoing forum to monitor customer satisfaction), Lessons Learned (LL) and After Action Review (AAR) processes, customer survey actions, and the results of Lean Six-Sigma (LSS) process improvement initiatives. The reporting component of the strategic management process is also an important consideration that must be reflected in this element of the USACE QMS. Additional discussion of these management areas is included in the supplemental guidance provided in Appendix C.

APPENDIX C

Supplemental Considerations for U.S. Army Corps of Engineers Quality Management System (USACE QMS) Design

These supplemental considerations follow the Plan-Do-Check-Act (PDCA) cycle of continuous improvement and are benchmarked to ISO 9001criteria for quality management.

1. Management Responsibility.

a. Management Commitment. Management at all echelons shall demonstrate commitment to the development and proper implementation of the USACE QMS by:

(1) Communicating the importance of achieving and maintaining understanding of customer quality requirements to the USACE and contractor workforces, as well as maintaining full compliance with the regulatory requirements governing USACE projects;

(2) Complying with USACE quality policy and doctrine as established in Section 7.b of this ER;

(3) Ensuring that enterprise-wide and echelon or organization specific quality objectives are properly considered in the planning and execution of projects and programs, in addition to the specific quality objectives that may be communicated by USACE customers via Project Delivery Team (PDT) participation and other processes;

(4) Actively participating in the Management Review process; and

(5) Ensuring the allocation of adequate personnel, budgetary, and other resources to support QMS functions within their echelon, organization, or area of responsibility.

b. Customer Focus. Management at all echelons shall ensure that communications and planning processes reflect a focus on achieving and maintaining an effective understanding of the quality requirements and expectations held by USACE customers. Customer satisfaction shall be actively monitored; customer complaints that may be detected in communications, monitoring, and auditing processes shall be documented; and effective corrective and preventive action undertaken in a timely manner.

c. Quality Planning. Management at all echelons shall ensure that enterprise-wide and echelon-specific quality objectives are consistent with the current USACE Campaign Plan and the quality policy and doctrine established in Section 7.b of this ER. Management shall also ensure that such objectives are considered in the planning and execution of projects and programs, in addition to the project- or program-specific quality

objectives that may be communicated by USACE customers. To the extent possible, such objectives should be measurable. Performance relative to established directives shall be routinely evaluated in the Management Review process

d. Responsibility, Authority, and Communication. Management at all echelons shall ensure that the specific responsibilities defined by ER 5-1-11, ER 5-1-15, and this ER are communicated to all organizational areas.

e. Internal Communications. The National Quality Program Manager (NQPM), individual organizational Quality Management Representatives (QMRs), functional offices/CoP leaders and other Senior Leaders are responsible for maintaining appropriate communications with USACE staff with respect to the requirements of the QMS and overall organizational performance. Communication on the specific details of the Enterprise Standards and other documents that comprise the USACE QMS shall be considered a fundamental element of integrated training processes.

f. Management Review. Management review is a critical continual improvement feature of the USACE QMS. On at least an annual basis, the Director, Resource Management Directorate (CERM) shall, with the assistance of a designated review team, conduct a performance review of the operational aspects of the USACE QMS in accordance with applicable Enterprise Standard requirements. The primary purpose of this Management Review is to ensure the continuing suitability, adequacy, and effectiveness of the USACE QMS and subordinate organization QMSs, with respect to USACE's organizational mission and Campaign Plan objectives. Such reviews are based on records and performance data compiled by the NQPM with the assistance of organizational QMRs. Data presented for review shall include:

(1) Results of internal audits;

(2) Results of command reviews or Inspector General (IG) inspections;

(3) Results of any external audits or performance reviews conducted by USACE customers or third parties;

(4) Results of USACE QMS implementation monitoring activities conducted by the NQPM;

(5) Results of other QMS Management Reviews;

(6) Status of open and closed corrective and preventive action requests including follow-up from previous Management Reviews;

(7) Customer and PDT feedback;

(8) Identification of notable trends apparent in compiled performance data;

(9) Evaluations of the adequacy of infrastructure and health and safety considerations in the working environment; and

(10) Suggestions for quality management policy refinements or USACE QMS changes or improvements, with appropriate justification.

(11) The results of the Management Review will be documented in a comprehensive report. Action items will be assigned and a schedule established for their completion. The draft report will be submitted to the Commander, USACE for review and approval prior to distribution to all echelons. The NQPM is responsible for initiating or coordinating the completion of all action items resulting from the Management Review.

(12) In addition to this annual review, the effectiveness of the USACE, Regional and local QMSs will be assessed through Command Management Reviews (CMR), Command Strategic Reviews (CSR), USACE Campaign Plan, other strategic goals, or other venues that are deemed appropriate.

2. Resource Management.

a. Support for QMS Implementation and Maintenance. Management at all echelons shall provide sufficient budgetary resources to effectively implement the USACE QMS, as well as implement required system improvements. Senior Leaders shall also confirm the availability of the resources necessary to meet the requirements of USACE customers as part of Enterprise Standards established for project acceptance.

b. Training and Maintenance of Workforce Capability. In order to ensure the competence and quality awareness of the USACE workforce, management at all echelons shall ensure that USACE personnel are provided training that is commensurate with their work experience, academic credentials, and the nature and relative complexity of their primary work assignments.

c. Infrastructure Resources. Management at all echelons shall ensure that sufficient infrastructure is available to permit USACE to safely and effectively execute accepted projects. This includes adequate buildings, utilities, and workspace; computers and networks with software resources appropriate for USACE project and administrative needs; and appropriate communications and transportation services.

d. Working Environment. Management at all echelons shall ensure that the working environment within which USACE and contractor personnel generate work products or provide services is safe and healthful. If USACE workforce assignments are associated with the Army's warfighting functions or other intrinsically dangerous missions, management shall ensure that personal protective equipment, logistics, and force protection support is provided at a level commensurate with the hazards likely to be experienced and Army force protection doctrine.

3. Planning and Delivery of Work Products and Services.

a. Process Planning. Planning for the delivery of work products and services to USACE customers shall be conducted in accordance with appropriate Enterprise Standards that address:

(1) Project identification and acceptance;

(2) Establishment and implementation of appropriate acquisition strategies;

(3) Definition or confirmation of customer quality requirements, development of PMPs and assignment of PDT functions to a capable workforce;

(4) Acquisitions of contractor resources or services;

(5) Execution of project scopes that encompass the full range of USACE engineering, environmental, scientific, regulatory, administrative, and management capabilities;

(6) Monitoring and management of fiscal and quality performance;

(7) Inspection and acceptance of deliverable work products and services;

(8) Records management;

(9) Other functions required by other USACE standards and guidance. Users shall implement the Enterprise Standards applicable to the general project planning needs listed above, as well as the additional procedural needs associated with the scopes of specific projects.

b. Customer Requirements and Communications. Clarification and definition of customer requirement at the initiation of a project (and continuing engagement and communication with the customer throughout the project) is a fundamental component of the PDT concept and the PMP process defined by the USACE PMBP. Direct customer engagement is encouraged by the PDT concept. Establishment of a formal communications plan that engages the customer and other important external stakeholders at appropriate intervals throughout a project is a required element of every PMP. The PDT provides a forum for the timely, collaborative resolution of customer issues. Specific complaints or issues that cannot be readily resolved by the PDT or that constitute a potential nonconformance shall be documented and resolved. In addition, one or more After Action Reviews (AARs) may be conducted at appropriate stages of a project to confirm the customer's relative level of satisfaction with USACE performance.

c. Design and Development. General requirements for design activities conducted by USACE and/or contractor staff shall be invoked by reference to applicable Enterprise Standards in the PMPs generated for specific projects. Design process-related Enterprise Standards shall establish appropriate controls over design input and output, including the customer's specific functional and performance requirements, applicable regulatory

requirements, and other information deemed essential to the quality of the design by the responsible PDT and Project Manager. Appropriate design process control elements selected from ER1110-1-12, Engineering and Design Quality Management, and other applicable USACE references or standards shall be invoked by individual Enterprise Standards or the governing PMP.

d. Acquisition. The acquisition of materials, equipment, and services in support of USACE-managed projects shall conform to acquisition-related Enterprise Standards, as applicable to specific project requirements. Receiving or source inspections of materials or equipment or products purchased in support of a USACE-managed project shall be performed, as appropriate for the complexity and criticality of the items involved. In addition, final inspection of purchased materials and equipment incorporated into a completed project shall be performed as part of Enterprise Standards for project transfer and completion. Non-conformances that may be noted in the execution of these processes shall be documented and resolved.

e. Work Products and Services. The PMBP is the primary mechanism used to set the conditions under which a USACE project is managed. The PMP provides a controlled method for ensuring that appropriate PMBP elements (and implementing Enterprise Standards or other USACE requirements and guidelines) are selected and appropriately applied to the customer's scope of work. PMPs shall be prepared with a level of detail commensurate with the complexity of project scope.

(1) It is noted that USACE does not employ any quality related processes for providing services or deliverable work products that require validation; the quality of such services and work products will be verified via design review or other monitoring and measurement methods.

(2) All USACE or contractor-led design work products shall be positively identified to the governing contract and PMP throughout the design process. Any special customer requirements for the traceability of specific material or equipment items used or installed on a project shall be defined in the governing PMP.

(3) Customer and/or Government-furnished materials or equipment used or installed on a USACE-managed project shall be identified, verified, protected, and safeguarded pending integration or use. Additionally, major projects will typically be subject to warranty inspections in conjunction with the customer's representative to ensure that all contractual requirements have been fulfilled and that Customer and Government furnished materials or equipment have been integrated or installed as specified. Any special requirements for the protection of the work products from USACE managed projects shall be negotiated with the customer and defined in the governing PMP. If applicable, such requirements shall be forwarded to contractors or suppliers via the acquisition processes discussed previously.

f. Control of Monitoring and Measuring Devices. Monitoring and measurement equipment owned by USACE Regions, Districts, Centers, Labs, or HPOs that is used for

the determination of project or work product quality, or that provides monitoring data or other information used in the development of studies, investigations, design, or construction, shall be kept in a controlled inventory and calibrated and maintained. Calibration records for any such equipment shall be maintained and retained in project records. If investigations of non-conformances indicate questionable monitoring or measurement equipment calibration or maintenance status, corrective and preventive actions must include an evaluation of the validity of previous measurements made using the same device.

4. Measurement, Analysis, and Improvement.

a. General. USACE will plan and implement appropriate measurement, analysis, and improvement processes at all echelons in order to demonstrate conformity to the customer's requirements; to ensure that the QMS continues to conform to the requirements of the currently approved versions of this ER, the ISO 9001 Standard, and other applicable management directives; and to ensure that the effectiveness of the QMS is continuously enhanced and improved at all echelons.

(1) The achievement of customer satisfaction is the primary purpose of the PMBP described by ER 5-1-11 and is a fundamental commitment of this ER. Major projects are subject to final cooperative evaluations focused on ensuring customer satisfaction. Customer complaints at any phase of a project that are not resolved directly by PDT action shall be documented as non-conformances and resolved. Customer satisfaction information shall be gathered, summarized, and evaluated further as part of the Management Review process.

(2) HQUSACE and Regional Headquarters conduct a wide range of internal audits in order to better gauge different aspects of organizational performance. These processes include Command Strategic Reviews, Command Assistance Visits (CAVs); Inspector General (IG) Audits; and Design Construction Evaluation Team (DCET) audits. In addition, HQUSACE, Regions, Districts, Centers, Labs, and HPOs will conduct appropriately scoped organizational QMS audits. The NQPM will schedule QMS implementation audits to ensure that each Regional HQ, District, Center, Lab, and HPO is evaluated at least once every three years. Regions, Districts, Centers, Labs, or HPOs with fully developed QMSs may conduct their own internal auditing programs provided that these minimum schedule requirements are met. The NQPM will reserve the right to participate as an observer on any lower-echelon audit team. Audit teams will be selected from qualified staff from all echelons with the provision that no audit team member may audit their own primary area of responsibility. Audit teams will be trained in the specific requirements of governing Enterprise Standard, including guidance on auditing methodology and the additional responsibilities of audit team leaders in accordance with appropriate BMPs. All findings of nonconformance resulting from audit activities shall be documented and resolved in a timely manner.

(3) The NQPM shall monitor the effectiveness of the business processes embodied in the QMS by evaluating the results of periodic CAVs, IG Audits, and DCET audits, as well as the results of comprehensive QMS audits.

b. Monitoring and Measurement of Work Products and Services. Enterprise Standards for PMP development shall identify appropriate in-process or final review processes to ensure that the customer's project-specific quality objectives (and the underlying objectives contained in the current USACE Campaign Plan, as applicable) are achieved prior to the delivery of the final project or work product. Major construction projects are also subject to a detailed final inspection in conjunction with the customer's representatives to ensure that all customer requirements have been addressed.

c. Control of Non-conformances. The detection, documentation, and effective resolution of nonconforming conditions are critical elements of the continual improvement process. Resolution of nonconformance includes the correction of the observed or detected condition, but must also include specific actions to detect and correct similar conditions, as well as the implementation of appropriate preventive measures that address fundamental or "root" causes and which eliminate or minimize the potential for similar situations to occur in the future. Enterprise Standards developed to address this requirement shall apply uniformly to non-conformances detected by direct observation, monitoring, inspection, or customer complaint, or that may be the result of internal or external QMS audits, CAVs, or IG evaluation processes.

d. Data Analysis. Data resulting from monitoring and measurement activities and the customer communications process shall be reviewed and presented to management in the Management Review process. Nonconformance trends shall be considered in developing appropriate corrective and preventive action. Supplier performance and nonconformance data shall be considered in the contractor selection process.

e. Continual Improvement. Continual improvement is a vitally important unifying concept that is common to the USACE QMS, the PMBP, and the strategic management process/system elaborated by ER 5-1-15. Continual improvement begins with the promulgation of HQUSACE quality objectives in the current USACE Campaign Plan, followed by translation of those objectives into a range of echelon-specific strategy plans, performance plans, and operations plans. The USACE QMS provides, via the Enterprise Standards and the additional procedural controls established under subordinate QMSs, the specific methodology by which such planning requirements can be practically implemented at Region, District, Center, Lab, or HPO levels. It should be emphasized that the QMS includes communication features that actively engage the customer in the definition of project-specific quality performance requirements, as well as in monitoring and measurement provisions that assess customer satisfaction and implement corrective and preventive action processes where the achievement of the customer's quality requirements may be found wanting. As a consequence, the performance data and other feedback necessary to support the tiers of budgetary, management, and performance reviews that USACE requires under ER 5-1-15 are strongly supported by systematic

processes for customer engagement and the achievement of customer satisfaction. These include:

(1) Communication processes;

(2) Periodic systems audits of the overall effectiveness and suitability of the QMS;

(3) Timely and systematic resolution of nonconformance's and implementation of associated corrective and preventive action processes; and

(4) Implementation of the Management Review process.

APPENDIX D

Quality Management Organization and Responsibilities

1. Organizational Chart. The quality management organization established for the development and implementation of the U.S. Army Corps of Engineers (USACE) Quality Management System (QMS) is depicted in figure D-1.

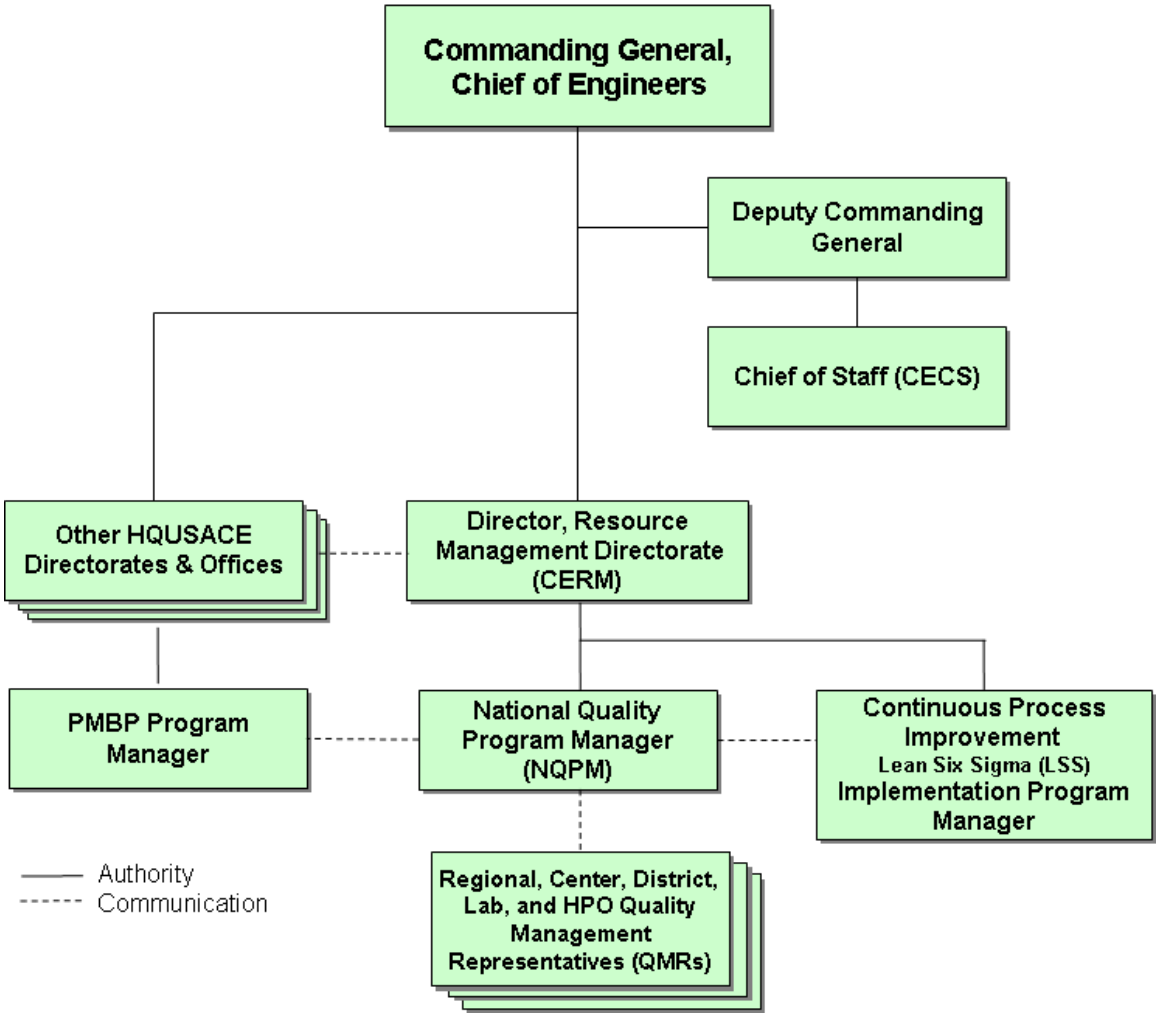

Figure D-1: Quality Management Organization, Reporting Responsibilities and Communications Links

2. Roles and Responsibilities. The quality management-related roles and responsibilities of the key management functions noted in Figure D-1 are summarized as follows:

a. Commanding General, USACE. The USACE Commanding General (CECG) is responsible for establishing USACE quality policy and doctrine through the agency of the Chief of Staff (CECS) and by endorsement of this ER. The CECG will also review and approve the organizational performance summaries and action item assignments presented in the management review process established by the USACE QMS, and, through the engagement of CECS and other USACE resources, will ensure that adequate resources are allocated to satisfactorily resolve required actions or implement practice improvements.

b. Director of Resource Management (DRM/CERM). The Director for Resource Management will be responsible to the CECG for general oversight of the USACE quality management system function. The DRM will be tasked with the designation of an appropriately qualified review team and conducting a performance review of the operational aspects of the USACE QMS in order to ensure the continuing suitability, adequacy, and effectiveness of the USACE QMS with respect to USACE's Campaign Plan and other mission objectives.

c. National Quality Program Manager (NQPM). The NQPM serves as the primary advocate for the USACE QMS within HQUSACE and is responsible to the Director of Resource Management for ensuring that that the USACE QMS is implemented as a default standard or used as a primary resource in the development or adaptation of subordinate Region, District, Center, Lab, or HPO-specific QMSs. The NQPM is responsible for the overall management, documentation, implementation, performance monitoring, and continual improvement of the USACE QMS and collaborates with the PMBP Program Manager and DRM to ensure the continuing effectiveness and appropriateness of the USACE QMS in implementing the PMBP and in supporting the implementation of the strategic management planning and reporting processes described in ER 5-1-15, using Enterprise Standards and other appropriate USACE requirements, guidelines, and directives. In addition, the NPQM is responsible for the development and administration of a cost-effective USACE QMS training program and will collaborate with the various organizational QMRs to support USACE QMS implementation at all echelons.

d. PMBP Program Manager. The PMBP Program Manager will coordinate with the NQPM to ensure that the USACE QMS provides appropriately controlled procedural means for implementing the business process requirements established by the USACE PMBP at all echelons.

e. Region, District, Center, Lab, and HPO Quality Management Representatives. Management at all echelons shall appoint QMRs who shall serve as primary points of contact for QMS training and implementation within individual USACE Region, District, Center, Lab, and HPO organizations. The placement of the QMR shall be left to the discretion of the organization (i.e resides within Engineering, Construction, PPM, Business Management, etc), as deemed to be the most effective for the organization. Other responsibilities notwithstanding, QMRs shall be delegated the responsibility and sufficient resources and authority for:

(1) Ensuring that the USACE QMS is implemented as a default standard, or used as a primary resource in the development or adaptation of subordinate Region, District, Center, Lab, or HPO specific QMSs;

(2) Providing an organizational point of contact for USACE and subordinate QMS training and implementation support activities;

(3) Assembling and reporting quality performance information and recommendations for specific improvements to upper management; and

(4) Otherwise ensuring that the quality requirements and expectations of USACE customers are properly communicated at all levels of the organization.

f. Functional Offices/Communities of Practice (CoPs). As noted in AR 25-1, Total Army Quality Management, CoPs are generally defined as a group of employees who regularly interact to collectively learn, solve problems, build skills and competencies, and develop best practices around a shared concern, goal, mission, set of problems, or work practice. USACE CoP responsibilities are enumerated in ER 25-1-8, The Community of Practice (CoP) in the U.S. Army Corps of Engineers. Functional offices/CoPs are assigned primary responsibility for ensuring the continued effectiveness of the Enterprise Standards developed to implement the USACE QMS within their areas of expertise.

g. Continuous Process Improvement - Lean Six Sigma. The Lean Six Sigma Program Manager will work and coordinate with the NQPM and functional offices/CoPs to improve business processes and continuous improvements.