



**US Army Corps
of Engineers®**
Sacramento District



Engineering Division

Quality System

Quick Reference Guide

Military

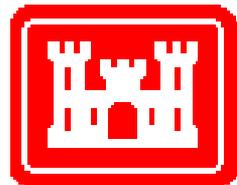


HTRW



August 2004

Civil Works



®

Quick Reference Guide

Contents

Introduction	1
Engineering Division Quality Policy Statement	1
What type of System do we have?.....	2
Where is our Quality System maintained?.....	3
How was this System created?.....	3
What are the benefits to you of this system?	3
What is expected of you?.....	3
What is "Certification" and how do we obtain it?.....	4
What does Certification do for us?	5
EQS Certification.....	5
Engineering Division Policies	6
1. Scope	6
2. Applicability	6
3. Responsibility	6
4. Quality Management System.....	6
5. Management Responsibility.....	7
6. Resource Management.....	8
7. Product Realization.....	8
8. Measurement, Analysis, and Improvement.....	11
Engineering Division Procedures	13

Introduction

This brochure provides a quick reference to the policies and procedures that guide Engineering's Quality System (EQS). Those policies and procedures outline our responsibilities for establishing, implementing, and maintaining a documented quality system.

Questions or comments concerning this brochure and/or the EQS may be directed to the Management Representative, Mr. John R. Hess, at (916) 557-7625.

Engineering Division Quality Policy Statement

Engineering Division is committed to being a recognized leader in providing a wide range of state-of-the-art engineering services, and providing our customers high quality products in a professional, efficient, and responsive manner.

We pledge to:

- ◆ Honor our commitments.
- ◆ Strive for continued improvement.
- ◆ Emphasize teamwork within Engineering Division, with customers, and with all entities with which we interface.
- ◆ Partner with our customers to establish clear design/project requirements, and mutually acceptable

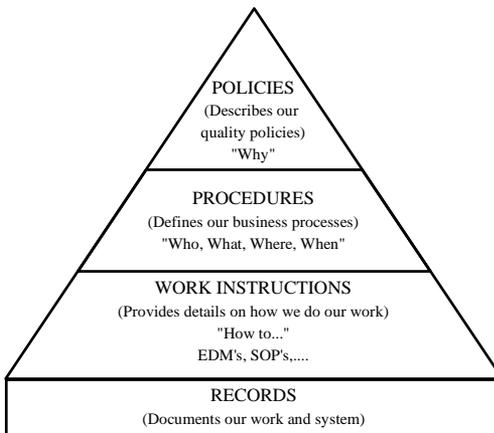
scope of services, cost, schedule, and quality expectations.

- ◆ Recognize our employees as our primary asset, providing an excellent work environment and training opportunities.
- ◆ Follow our established processes and procedures, while allowing flexibility to respond to specific customer-defined quality achievement.
- ◆ Obtain and retain ISO 9001 Registration.

What type of System do we have?

Our EQS serves the needs of our business, supports our customers, and is documented and controlled. Our quality system must clearly and simply "say what we do," "do what we say," and provide proof. This process is based on doing what our customers require and necessary for our business.

The system can be described in a tier form as follows:



Where is our Quality System maintained?

Our source for distribution for our EQS can be found on the District homepage on our Intranet.

How was this System created?

Engineering Division people wrote these policies, procedures, and work instructions for Engineering people.

What are the benefits to you of this system?

- ◆ Better Communication.
- ◆ Helps all of us focus on established business procedures.
- ◆ Better understanding of our system, including new personnel.
- ◆ Continuous improvement.
- ◆ Puts all USACE Business Processes, 2012, PMBP, P2, QMP, in one easy to find location.

What is expected of you?

Every person in Engineering Division is expected to apply these policies and procedures while executing their work. You need to:

- ◆ Be knowledgeable of Engineering Division quality system requirements and policy objectives.
- ◆ Apply our policy and procedures to the work you do.
- ◆ Make changes through formal procedures only.
- ◆ Participate in EQS audits to help improve our system. (These are audits of the system, not of you!)
- ◆ Actively support Engineering Division's Management Team and Management Representative.
- ◆ Know what to do when quality issues arise.

What is "Certification" and how do we obtain it?

It is one thing to state we believe we have an effective EQS; it is another thing to prove it. Certification of our system is similar to the professional registrations and certifications obtained by many of us. To achieve a certificate of registration, we will compare our EQS to the ISO 9001:2000 registration standards. ISO 9001 is a set of international standards that define the requirements of quality systems. It is THE STANDARD used by the international community to measure their processes and procedures. An accredited registrar will perform certification evaluation. The registrar will send an audit team to perform an exhaustive assessment of our business processes. Essentially, they will check to see that we say what we do, do what we say, and can prove it. This evaluation will include all areas that affect our EQS and must be reconfirmed on a 6- to 12 month basis. Passing the certification audit will identify us as a “professionally

registered” organization.

What does Certification do for us?

Certification of our system to the ISO 9001:2000 standard is not a Corps requirement; however, we believe there are numerous advantages for Sacramento District Engineering Division to maintaining certification. The benefits include:

- ◆ Increased job satisfaction by our team members.
- ◆ Improved customer satisfaction, productivity, and control.
- ◆ Fewer changes during design and construction.
- ◆ Better communication internally and with our customers.
- ◆ Techniques to pursue continuous improvement.

EQS Certification

We obtained our initial Certificate of Registration under the Scope of ISO 9001:1994 Standard on September 15, 2003. We are now certified under the ISO 9001:2000 Standard through September 15, 2006. The current standard addresses five levels:

- ◆ Quality Management System.
- ◆ Management Responsibility.
- ◆ Resource Management.

- ◆ Product Realization.
- ◆ Measurement, Analysis, and Improvement.

Engineering Division Policies

1. Scope

This *Engineering Division Quality Manual [REFQ06L0]* and supporting documents covers all work performed by the Sacramento District Engineering Division (ED).

2. Applicability

It applies to all ED employees and shall be observed and implemented by all personnel as applicable to their activities. No deviation is permitted without the express permission of the Management Representative.

3. Responsibility

The ED Management Representative is vested with full responsibility for the proper and timely implementation of the Engineering Quality System (EQS), together with the appropriate level of authority for ensuring its continuing effectiveness. This manual, as well as the entire EQS, will be reviewed annually as a minimum.

4. Quality Management System

Our EQS addresses specific functions and processes that affect product quality, and provides for methods of planning, implementing, documenting, monitoring, and auditing these activities. All quality-related documentation is formally controlled to avoid use of outdated guidance. The EQS documentation is electronically maintained.

5. Management Responsibility

Our Division maintains an organization structure that defines responsibilities, authority, and lines of communications for areas that affect product and service quality. Accountability and responsibility for quality rest with all Engineering Division employees. Our responsibilities include:

- ◆ Set priorities.
- ◆ Provide quality products.
- ◆ Provide required resources.
- ◆ Develop and monitor key performance measures.
- ◆ Direct corrective/preventive actions.
- ◆ Evaluate system effectiveness.

ED fully supports the vision statement and strategies of HQUSACE and has incorporated them into the Quality Manual where appropriate. ED will continue to improve our business processes and philosophy based on the HQ strategies (*ER 5-1-11*), PMBP and business plan. Our EQS requires an understanding of the customer's requirements, and addresses the ability and capability to meet those requirements. Our responsibilities include the following:

- ◆ Ensuring agreement with customers.
- ◆ Accomplishing work in conformance with requirements.
- ◆ Coordinating with all District team members.

- ◆ Conducting a review of each work request to determine our ability to accomplish the effort within established budget and schedule.

6. Resource Management

Management ensures that adequate equipment and systems (computer hardware, software and networks) are available to implement and maintain the quality management system and continually improve its effectiveness.

Each project PMP also addresses resources for quality management to enhance customer satisfaction by meeting customer requirements.

All permanent ED personnel have a Mission Essential Task List (METL) and an Individual Development Plan (IDP), stored in the Automated Training Management Program (ATMP). Required training is identified on the employee's IDP. Supervisors review Job Descriptions annually.

Staff expertise includes skills necessary to perform Quality Control (QC) and Quality Assurance (QA) activities, and an understanding of the EQS. Management ensures that fiscal and staffing resources are adequate to perform QC and QA activities, as required by customers, for all products.

Management shall determine and manage the work environment needed to achieve conformity to product requirements.

7. Product Realization

ED has planned and developed the processes needed for product realization. Planning of product realization is consistent with the requirements of the other processes of

the EQS.

ED personnel develop a QCP for each engineering product or service. The QCP shows how the technical, schedule, design verification, coordination, and cost requirements for the product or service will be met.

Specific PMPs define customer expectations and requirements, industry practices, applicable criteria, technical roles and responsibilities (including composition of the design and review teams), design verification, schedule and milestones, and unique, sensitive or high visibility concerns.

When engineering products are developed by A-E firms, the A-E firm must develop its own QCP, and ED will develop a corresponding Quality Assurance Plan (QAP), which addresses those activities taken to ensure the overall effectiveness of the A-E's quality control process.

In the event that ED or the customer should seek to vary the contract conditions or requirements, revisions, as agreed to by the customer and the ED design elements involved, will be made to the project scope following *Contract Review [PROP01L0]*.

The revised scopes will be incorporated into the PMP and processed in accordance with *Resource Estimate Development [PROC2040]* and *Change Management [PROC3010]*.

Customer communication will be in conformance with the Communications Plan developed for the project in accordance with *Communications Plan [REF8006G]*.

The QCP for each product identifies appropriate review stages for that product, and meetings involving all relevant

personnel are held as required to ensure that the design and development activity are proceeding in an appropriate manner. Records of all design reviews are maintained.

Each stage of the development activity is subject to verification activities, which form part of the design review. Design verification ensures compliance with all applicable criteria.

The verification process may include, but is not limited to, the following:

- ◆ Major assumption and calculation checks by peers or senior personnel.
- ◆ Designer/Reviewer consultations.
- ◆ Performing alternative calculations.
- ◆ Comparing new design against a similar proven design.
- ◆ Conducting physical model studies.
- ◆ Utilizing recognized experts and/or consultants.

Our EQS requires the establishment and maintenance of procedures specific to performing and verifying that servicing work appropriately meets customer needs.

Typical servicing work includes support provided through Engineering During Construction, site visits, periodic inspections, hydro monitoring, Water Management, and Project Operation. Engineering Division maintains the following procedures for providing post-design services appropriate to the needs of our customers.

- ◆ *Inspections of Reservoir and Navigation Projects [PROP10L0]*
- ◆ *Inspections of Bridges [PROP11L0]*
- ◆ *Instrumentation Data Review [PROP12L0]*
- ◆ *Dam Safety Training [PROP13L0]*
- ◆ *Dam Safety Assurance Program [PROP14L0]*
- ◆ *Water Management and Project Operation [PROP15L0]*

8. Measurement, Analysis, and Improvement

Our EQS provides for the use of statistical techniques to confirm process and product acceptability, and to provide a basis for continuous improvement. We use statistical techniques for monitoring customer satisfaction, assessing trends, and measuring overall performance.

Engineering Division adheres to the SPK Metrics for Product, Financial, Customer, and People. Each metric that pertains to our EQS is tagged in their respective drill downs to a set of our documented quality system procedures.

Our EQS provides for the planning, scheduling, implementation, and documentation of internal audits to ensure quality-related activities comply with written procedures. Each functional unit shall be audited on a periodic basis. Internal auditors shall not audit their own functional unit. Internal audit results include a statement as to the effective application of the EQS, and possible suggestions of what corrective/preventive actions are needed.

The processes identified in *Corrective Actions [PROA01L0]* will be implemented for development of all ED deliverables. Engineering Division will eliminate the cause of a nonconformance in order to prevent the occurrence of nonconforming products. Corrective action may be taken on the product, process and EQS.

New lessons learned will be developed in accordance with references *Capturing Lessons Learned [PROA02L0]* and *Processing Lessons Learned [PROA03L0]*. The following are examples of corrective actions:

- ◆ The creation of Lessons Learned.
- ◆ Sharing of lessons learned with other Corps elements.
- ◆ The *CCR* process for requesting guidance/criteria correction or change.
- ◆ Revisions of procedures, work instructions, criteria, standard details, etc.

These procedures encompass numerous areas of concern, including customer concerns, identification of corrective action, follow-up to confirm that corrective action was taken, and continual oversight of quality control procedures ensuring appropriateness and compliance with these procedures.

For each project deliverable developed by ED, a review of the Lessons Learned shall be initiated applicable to the project. ED shall implement the processes identified in *Integrating Lessons Learned [PROA04L0]*, *Preventive Actions [PROA07L0]* and *A-E Responsibility Management Program [PROA05L0]* for development of all ED deliverables. Summary information is reviewed through the EQS management team meetings.

Engineering Division Procedures

The procedures are devised to be responsive to the ISO 9001:2000 and PMBP. Each procedure lays out the process to follow in the Activity and Flow Chart. Each procedure includes ten basic components:

Scope

Policy

Responsibility

Distribution

Ownership

References

Definitions

Records

Activity

Flow Chart