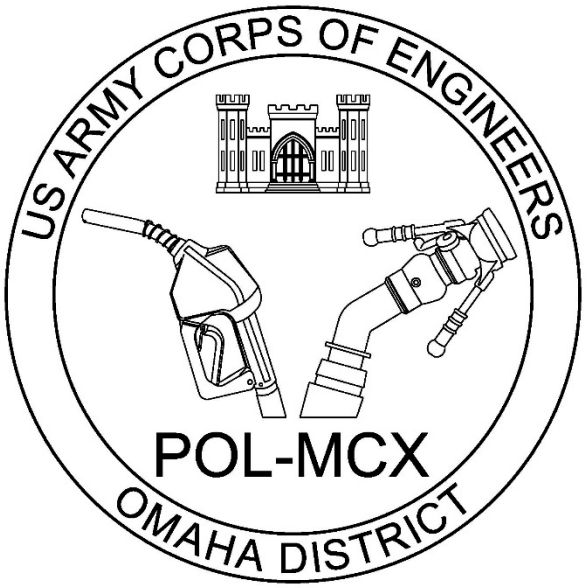
US Army Corps of Engineers

Program Management Plan

Petroleum, Oil, and Lubricants

Mandatory Center of Expertise



23 January 2017

Omaha District

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PROGRAM MANAGEMENT PLAN

PTROLEUM, OIL, AND LUBRICANTS
MANDATORY CENTER OF EXPERTISE
U.S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT

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ACRONYMS

A-E	Architect Engineer
AOR	Area of Responsibility
ACO	Administrative Contracting Officer
AFCEC	Air Force Civil Engineer Center
AFPET	Air Force Petroleum
APC	Army Petroleum Center
AST	Aboveground Storage Tank
BCD	Basic Change Document
CD	Construction Division
CEFMS	Corps of Engineers Financial Management System
CENWO	U.S. Army Corps of Engineers Northwestern Division Omaha District
CMP	Central Managed Program
CO	Contracting Officer
COR	Contracting Officer Representative
D-B	Design-Build
DA	Design Agent
DLA	Defense Logistics Agency
DOD	Department of Defense
EA	Executing Agent
ED	Engineering Division
ER	Engineering Regulation
FFEP	Fuels Facility Engineering Panel
FOB	Forward operating Base
FY	Fiscal Year
GD	Geographic District
HQUSACE	Headquarters, US Army Corps of Engineers
IDIQ	Indefinite Delivery Indefinite Quantity
MATOC	Multiple Award Task Order Contract
MCX	Mandatory Center of Expertise
MILCON	Military Construction
MOU	Memorandum of Understanding
MSC	Major Support Command
NAVFAC	Naval Facility Command
NAVSUP	Naval Supply Systems
NWO	Omaha District
OCO	Overseas Contingency Operations
PASB	Project Acquisition Strategy Board
PgMP	Program Management Plan
PDT	Project Delivery Team
PMBP	Project Management Business Process
PMP	Project Management Plan
POC	Point of Contact

POL	Petroleum, Oil, and Lubricants
PM-S	Special Projects Branch
PPPM	Planning, Programs, Project Management Division
PPS	Project Planning Studies
Q1	First Quarter
Q2	Second Quarter
Q3	Third Quarter
Q4	Fourth Quarter
RMS	Resident Management System
SCP	Service Control Points
SMC	Specified Military Construction
SOH	Safety and Occupational Health
SRM	Sustainment, Restoration, Modernization
TCX	Technical Center of Expertise
UFC	Unified Facilities Criteria
UFGS	Unified Facilities Guide Specifications
UMC	Unspecified Military Construction
US	United States
USACE	US Army Corps of Engineers
VE	Value Engineering
WBS	Work Breakdown Structure

1 Introduction

1.1 Program Execution

The Petroleum, Oil, Lubricants (POL) Mandatory Center of Expertise (MCX) is a nontraditional production center that employs a matrix organization, with each discipline reporting to their respective sections.

1.2 Purpose

This Program Management Plan (PgMP) establishes operational guidelines for the POL-MCX to fulfill the requirements set forth in ER 1110-1-8167 "Petroleum, Oil, and Lubricants Mandatory Center of Expertise," (Appendix A) and to provide a framework to manage the various resources associated with project execution. This PgMP is intended for all stakeholders to reference when seeking or performing planning, engineering, design, inspection, evaluation/assessment, repair, and construction services on military fueling systems.

Implementation of this PgMP will help ensure the USACE POL-MCX provides technically correct, high quality products. This PgMP will address stakeholders, supported programs, funding, and technical quality assurance review responsibilities of the USACE POL-MCX. Project specific Project Management Plans (PMP) will reference this document and will detail specific activities, roles, and responsibilities for each project executed. The PgMP is a living document that will be regularly updated as changes in process are developed to make the program more efficient at meeting the customer's desired outcomes.

1.3 Program Goals

The POL-MCX Program has the following Lines of Effort for *all* POL-MCX projects:

- Provide correct, relevant, and timely technical and field support for all USACE projects meeting the POL-MCX requirements as outlined in ER 1110-1-8167 "Petroleum, Oil, and Lubricants Mandatory Center of Expertise."
- Pursue our mission goal of providing clean, dry fuel reliably and safely to support the mission/Troop through project execution using resources internal to Omaha District, including contract vehicles, designers, and field staff.
- Provide systematic updates to all stakeholders on POL-MCX functions, including training, support, AOR coordination, and POCs.
- Offer and maintain A-E and Design-Build contracts consisting of pre-qualified fuels contractors that are made available to USACE and DOD.

1.4 Authorities

Authority is per:

- ER 1110-1-8167 Engineering and Design, Petroleum, Oil, and Lubricants Mandatory Center of Expertise dated (31 August 2016)

- HQUSACE Memorandum dated 30 June 2016 certifying the MCX Fueling Systems POL (Petroleum, Oil, Lubricants)
- HQUSACE Memorandum of Agreement (Agreement Number DLAE-MOA-BA-15-01) with DLA-Energy establishing POL-TCX as National Program Manager for DLA-Energy
- HQUSACE Memorandum dated 20 March 2012 recertifying the TCX Fueling Systems POL (Petroleum, Oil, Lubricants)
- POL-TCX Program Management Plan approved by HQUSACE in March 2012
- Signed Charter between HQUSACE and POL-TCX dated 20 February 2015 designating POL-TCX as the permanent proxy representative for HQUSACE for FFEP meeting attendance and voting requirements in the absence of the HQUSACE representative.

1.5 Applicability

This Program Management Plan applies to all projects supported and executed by the USACE POL-MCX. The processes outlined in this document apply to both USACE personnel working for the POL-MCX and to the firms hired by the POL-MCX to work on projects.

2 Organization

The POL-MCX is a matrixed organization that leverages fueling systems engineering, program management, project management, and construction expertise from across Omaha District elements.

2.1 POL-MCX Command and Control

Appendix B illustrates the primary command and control for the POL-MCX.
The POL-MCX Advisory Group serves in an advisory capacity to the POL-MCX Director for implementation of POL-MCX activities including resolving issues and providing guidance to all USACE elements responsible for POL-MCX activities. The POL-MCX Advisory Group will meet at least once each year, or more frequently if necessary, per the process outlined in the "Interim POL-MCX Advisory Group" memo dated DD MM YY (Appendix C).

The POL-MCX Advisory Group will consist of:

- Chief, Engineering Division (POL-MCX Director)
- Chief, Planning, Programs & Project Management Division
- Chief, Construction Division
- Chief, Design Branch, Engineering Division
- Chief, Fuels Section, Design Branch, Engineering Division
- Chief, Fuels Section, Special Projects Branch, PPPMD
- Chief, Defense Fuels Branch, Construction Division

2.2 POL-MCX Execution

2.3
The POL-MCX organization is summarized in Appendix B.

3 Roles and Responsibilities

3.1 General Roles & Responsibilities

Appendix D identifies the roles and responsibilities of the primary stakeholders and POL-MCX members. Task responsibilities of the program team are described below.

- Engineering Division
  - Maintaining In-House fuels engineering technical expertise
  - Maintaining In-House fuels production design capability
  - Developing and maintaining the criteria and standards
  - Review capabilities
  - Obtaining and performing A/E contract management
  - Criteria and standards development and maintenance
  - Construction Division technical support (training, commissioning, etc.)

- Program, Project, & Planning Division
  - Annual workload assessment
  - Manage contract capacity and execution
  - Communicate to all stakeholders
  - Assign funding to workload
  - Approve and authorize obligation of funds
  - Monitor and manage internal and contractor resources
  - Reporting
  - Maintain program acquisition tools

- Construction Division
  - Dedicated construction staff ensures compliance with Fuels standard
  - Experience and training:
    - API 650/653
    - Permit required confined space
    - Stainless steel welding
    - Fuels system commissioning

- Contracting Division
  - Approve and authorize contracts
  - Coordinate field mods and REA's
  - Facilitate acquisition of contract tools

- Geographic District
  - Conform with applicable USACE regulations.
  - Communicate AOR requirements and risks.

- Funding Agency
  - Clearly define project requirements, constraints, risks, and assumptions.

3.2 Specific Roles & Responsibilities

Specific roles and responsibilities of the program team are described below.

- POL-MCX Director (CENWO Engineering Division, Division Chief). The POL-MCX Director is responsible for ensuring that the POL-MCX abides by all mandated requirements set forth by ER 1110-1-8167. These duties include, but are not limited to:
  - Conflict resolution: mediating and deciding on disagreements between POL-MCX and other stakeholders;
  - Reporting: reviewing any reports submitted to HQUSACE that document projected and past execution of POL-MCX program; and
  - Standards and criteria: ensure that appropriate reviews of standards and criteria occur prior to release.

- POL-MCX Program Manager (CENWO PPPM Division, Special Projects Branch, Fuels Section). The primary role of the POL-MCX Program Manager is to coordinate, communicate, and resource POL-MCX assets with all stakeholders. These duties include (but not limited to):
  - Contract source selection advisor: resource and schedule appropriate POL-MCX resources to perform source selection advisor duties;
  - Source selection board: resource and manage appropriate POL-MCX resources to perform source selection board duties;
  - POL-MCX training: resource and manage resources to update and deliver POL-MCX training to primary project stakeholders (both internal and external to USACE);
  - Ensure that the SRM Methodology is applied on projects executed by POL-MCX (reference Appendix E);
  - Develop and update standards and criteria: resource and manage maintenance, update, and development of standards and criteria;
  - Annual workload assessment: compile data from all stakeholders on existing and forecasted workload;
  - Annual report: prepare and present summary of POL-MCX activities to HQUSACE proponent; and

- Reporting: prepare, staff, and present data requested by the requesting stakeholder(s)
- Compile customer survey and feedback forms

- Program Management Team (CENWO PPPM Division, Special Projects Branch, Fuels Section). The Program Management team consists of:
  - Functional POL-MCX Program Managers (CMP, Emergent, MILCON, and PPS).
  - Resource and manage projects specific to their program scopes.

- Project Managers (PPPM Division, Special Projects Branch, Fuels Section)
  - Overall responsibility for life-cycle management of the project, to include the schedule, project costs, reporting project status, changes, change management, resolving problems, monitoring project funds provided by the Client, and overall coordination with the funding agency
  - Populate and update project files in Projectwise
  - Perform AOR coordination
  - Final acceptance testing: resource and manage resources to participate in final acceptance testing
  - Coordinate with the PDT to develop a WBS in accordance with an existing fuels program

- POL-MCX Construction (CENWO Construction Division, Special Projects Construction Office)
  - Enforce quality assurance
  - Coordinate MOA with local area office when required
  - Ensure that the SRM Methodology is applied on projects executed by POL-MCX
  - Dedicated construction staff ensures compliance with Fuels standard
  - Experience and training:
    - API 650/653
    - Permit required confined space
    - Stainless steel welding
  - Fuels system commissioning
  - Populate and update project files in RMS and Projectwise

- POL-MCX Contracting (CENWO Contracting Division, Military Section)
  - Execute contracting actions in accordance with existing regulations and authorities.

- Chief, Fuels Section, Design Branch (CENWO Engineering Division, Design Branch, Fuels Section)
  - Allocate Design Branch technical staff to committed POL-MCX duties
  - Assign project/efforts to specific technical staff

- POL-MCX Engineers (CENWO Engineering Division, Design Branch, Fuels Section)
  - Provide technical expertise in support of USACE fuels projects (including planning, design, and implementation)
  - Support the SRM Methodology on projects executed by POL-MCX
  - Serve as the designated proxy voting member for all FFEP activities
  - Provide technical competence to support FFEP activities
  - Perform source selection advisor/board duties as assigned
  - Conduct, deliver and update POL-MCX Training
  - Attend Final Acceptance Testing
  - Develop and Update standards and criteria
  - Conduct reviews of design and other products submitted for POL-MCX review

- POL-MCX Funding Analysts (CENWO PPPM Division, Programs Management Branch)
  - Qualify and obligate funds in accordance with existing regulations and authorities

- Partners in execution (e.g., USACE Districts and Centers, AFCEC, NAVFAC)
  - USACE Districts and Centers
    - The responsibility for execution of MILCON (SMC and UMC funded) projects is the Geographic District. Mandatory and elective services of the POL-MCX are summarized in Table B-1 of ER 1110-1-8167

    - Execution of non-MILCON projects within Geographic Districts boundaries will be coordinated in a Project Management Plan to establish lines of communication, roles and responsibilities, and funding requirements.
  - AFCEC, NAVFAC
    - POL-MCX has no authority on projects executed by AFCEC, NAVFAC, or any other executing agent outside of USACE.
    - Upon request, another executing agent may approach POL-MCX for technical support (to include, but not limited to technical support/guidance, planning, design, and implementation).

- Other key stakeholders with whom POL-MCX engages on a regular basis (e.g., DLA, APC, AFPET, NAVSUP)
  - Key stakeholders are engaged on fuels projects to ensure that capitalization requirements and mission objectives are considered.

4 Scope

4.1 Program Scope

The POL-MCX Program consists of three (3) primary business lines:

- Support for Others
- MILCON
- SRM

Refer to the PMP for each program for specific information on work acceptance, establishing the Project Delivery Team (PDT), identifying stakeholders, and establishing expectations and roles and responsibilities for each project.

4.2 Support For Others and Criteria & Standards

Reference POL-MCX Support For Others and Criteria & Standards PMP. Support for Others work applies to USACE geographic Districts (GD) and other DOD agencies. These projects are typically Advertised/Awarded by the requesting Agency that has DA/EA authority for the project's location. Mandatory and Optional POL-MCX services are summarized in ER 1110-1-8167.

4.3 MILCON

Reference Omaha Fuels MILCON PMP. The responsibility for execution of MILCON (SMC and UMC funded) projects is the Geographic District. MILCON (SMC funded) funded projects that are typically of sufficient size, cost, and/or complexity as to require separate contracts for each construction project. "Minor" MILCON (UMC funded) projects are typically of small size, cost, and/or complexity as to not justify separate contracts for construction, and in many cases utilize the Design-Build Fuels MATOC on which the POL-MCX maintains the CO/ACO/COR authority and administrative management functions. Support for MILCON work is typically requested by the funding Agency through the local USACE Geographic District (GD) in which the project will occur. Mandatory and Optional POL-MCX services are summarized in ER 1110-1-8167.

4.4 SRM

Emergent, CMP, and PPS. The HQUSACE Memorandum of Agreement (Agreement Number DLAE-MOA-BA-15-01) with DLA-Energy establishes the POL-MCX as National Program Manager for DLA-Energy. Mandatory and Optional POL-MCX services are summarized in ER 1110-1-8167. The SRM Methodology (see Appendix E) is employed to provide adequate technical oversight and direction to reduce project overrun and rework.

Reference Omaha Fuels PMP's for each of the program types outlined in the below list

- Program Types
  - Project Planning Studies
  - Central Managed Program
  - Emergent

- Funding types:
  - Reimbursable and discretionary funds
  - SRM (funding assigned for maintenance/repair/construction)

Service Areas: POL-MCX provides support to over 500 installations throughout the world with the ability to support USACE fuels projects worldwide.

5 Workload.

5.1 Annual workload.
Each year, the POL-MCX Program Manager will summarize projects eligible for POL-MCX involvement for the next FY.

5.2 POL-MCX Workload Requirement Determination
In Q3 of each FY the POL-MCX Program Manager will solicit workload requirements from each stakeholder to include, but not limited to, the following:

- HQUSACE POL-MCX proponent
- USACE DLA National Account Manager
- Service Control Points (APC, AFPET, NAVSUP)
- DLA-Energy
- DLA Installation Support (Automation, MILCON)
- Representatives from Commands and Installations
- USACE Districts, Centers, and Laboratories

Each funding agency will present a list of projects and activities to be funded and initiated in the following FY, identify any priority projects, and provide input on to which USACE District or Center the project should be assigned.

5.3 POL-MCX Workload Acceptance and Distribution

In Q3 of each FY, and after the Workload Requirement Determination, the POL-MCX Program Manager shall prepare a Workload Acceptance and Distribution summary. The Workload Acceptance and Distribution summary will be presented to the POL-MCX Advisory Board to qualify, sequence, accept, and distribute projects requiring POL-MCX support.

The POL-MCX Advisory Group will identify which of the proposed projects from the Workload Acceptance and Distribution summary are considered mandatory and optional per ER 1110-1-8167. After mandatory projects have been accepted, the POL-MCX Advisory Group will determine which of the optional projects will be accepted by the POL-MCX, then which Districts or Centers will be coordinated with for execution based on their capacity and willingness to accept the work, and at what level of effort. Performance metrics (e.g., percent of the work by dollar value distributed to Districts and Centers outside of Omaha POL-MCX) will be used to support workload distribution decisions. All recommendations will be compiled by the POL-MCX Program Manager and distributed for comment before being submitted to HQUSACE and the POL-MCX Advisory Group.

6 Assumptions and Constraints

6.1 Definition

Critical assumptions are propositions, axioms, postulates, or notions the PDT takes to be true at the time of PMP development that are so important that if they are proven to be incorrect or they change, may cause major impact to the project delivery. *Constraints* are propositions, axioms, postulates, or notions that limit the PDT's options for project delivery. This PgMP describes how a PDT shall identify and address critical assumptions and constraints for a POL-MCX activity.

6.2 Procedure

Appendix F lists the assumptions, risks, and constraints that are common to all POL-MCX activities. However, this does not include project-specific conditions. Therefore each PDT shall:

- Verify these assumptions and constraints that apply to their specific project
- Identify any other assumptions or constraints that may apply
- Verify the validity of any assumptions made
- Maintain their PMP accordingly

7 Risk Management.

Reference assumptions and risk in Appendix F. The POL-MCX Project Manager will identify and assess risks for work acceptance, and appropriate responses to risks, using the Work Acceptance process summarized in Section 5.3. Assumptions that prove false will be brought to the attention of the POL-MCX Program Manager. The POL-MCX Program Manager will reassess the risk and notify the POL Director. The POL Director will determine if it is necessary to convene the POL-MCX Advisory Board to address the risk. The POL Director makes the final decision on addressing risks. The POL-MCX team will use the Basic Change Document (BCD) to document approved changes to projects.

8 Schedule

8.1 Definition

Schedule is the catalog, inventory, and listing of the timing, durations, and sequencing of all activities necessary to complete a project or program. Reference the PgMP's for individual programs for how a PDT shall prepare and manage the official schedule for a project and for activities that support the program. In the case that a POL-MCX project is not already included in an existing PgMP, the schedules shall be tailored to meet the specific needs of each project.

8.2 Activity Durations

The following activity durations are used as a planning factor. Detailed activity durations can be found in the program-specific management plans in Appendices J-N. Key assumptions to these activity durations are listed in Appendix F.

- Design review: 10 working days
- Design-Build task order award using POL-MCX MATOC: 120 calendar days
- A-E task order award using POL-MCX IDIQ: 60 calendar days

9 Budget

The POL-MCX is a project-funded reimbursable organization. Before any reimbursable work commences the POL-MCX and the geographic district (or other Agency) will develop a mutually acceptable scope of work, schedule, and cost estimate for the efforts of POL-MCX. Reference the PMP for individual fuels programs for information on how funds for program and projects will be requested.

9.1 Operating Funding Requirements

In Q4 of each FY the functional program managers will calculate the operating funding requirements for executing their program in the next FY, give the assumptions listed in Section 3. The operating funding requirements will include explanations of what will be done with these programmatic funds.

9.2 Program Budget

In Q3 of each FY the Functional POL-MCX Program Managers (CENWO PPPM Division, Special Projects Branch, Fuels Section, see section 3.2) will summarize their projected workload over the next five (5) years based on the POL-MCX work acceptance process outlined in Section 5.3. These workload projections will include projected cost and locations broken out by year and presented to all stakeholders to provide budgetary estimates for out-years and manage staff/personnel in the POL-MCX organization.

9.3 Project Budget

The POL-MCX will develop a budget for each project. The level of involvement for each member of the POL-MCX will vary depending on the services requested by the funding agency. The POL-MCX services must be reimbursed at cost, and every effort will be made to stay within project budget. The POL-MCX will immediately notify the funding agency when circumstances develop that impact the budget. The fee proposal within each plan is based on the specific roles and responsibilities of the project team.

10 Quality Management

10.1 Definition

Quality is nothing more than meeting the customers' requirements and expectations. Quality Performance is producing products and services that meet the customers' requirements and expectations. The NWO Engineering Division Quality Control Process for In-House Projects/Products (20 Sep 2012) describes the design quality control process for engineering products developed for in-house projects by POL-MCX. It is expected that appropriate technical review by senior technical experts in the POL-MCX will suffice for internal review. Appendix G contains the Omaha District Quality Control Process that is used by the POL-MCX for In-house Projects/Products. Reference the PgMP for each fuels program for more information on their specific quality management plan.

10.2 Customer Survey and Feedback Forms

Upon completion of work performed by the POL-MCX, the geographic district will be requested to complete a customer satisfaction survey to assess the quality of POL-MCX products and services. The survey results will be compiled by the POL-MCX Program Manager and utilized by the POL-MCX to improve processes, products and services as appropriate.

10.3 Project Execution Analysis

During and after the execution of each project, conformance to baseline schedule, budget, and scope assumptions will be analyzed and adjustments made to current and future projects as appropriate.

11 Acquisition Strategy.

11.1 Definition.

Acquisition Strategy is the plan or method of services from Government contractors. CENWO has awarded several Indefinite Delivery Indefinite Quantity (IDIQ) contracts for A-E services and a Multiple Award Task Order Contract (MATOC) for Design-Build construction services for the POL-MCX. Reference specific PgMPs for each fuels program for more information on how the PDTs will follow this acquisition strategy.

11.2 Contracting Tools

The POL-MCX will leverage pre-qualified contractors to supplement or execute projects as appropriate and with adequate technical and field oversight. Contracting tools include pre-qualified Fuels A-E contractors and pre-qualified Design-Build contractor teams. Advertisement, amendments, and modifications will be controlled by the POL-MCX ACO and COR if executed using Omaha's contract vehicles. Requests from other Districts, Agencies, or Centers for ACO, COR, or contract capacity will be considered.

11.3 Forecasting Need For External Services

In Q1 of each FY the POL-MCX shall identify the contracting actions required in that FY using a Programmatic PASB. All key stakeholders within Omaha District will review and acknowledge the quantity, type (A-E or construction), and business type (small business, unrestricted, etc.). During each Programmatic PASB review the team will discuss how the POL-MCX will buy services to meet all requirements and applicable rules, examine acquisition strategies of each components, and review the overall status of each contracting tool (e.g., every 5 years get new A-E, D-B for fuels specific projects).

12 Safety and Occupational Health Risk Management.

12.1 Definition.

Safety and Occupational Health Risks (SOH Risks) are any proposition, axiom, postulates, or notions that have some possibility of occurring and, if it occurs, will likely threaten the safety or health of people or result in property damage. Reference the SOH section of individual Program Management Plans for specific applications to projects.

12.2 Procedure.

All POL-MCX projects will be executed in accordance with USACE Engineering Pamphlet 385-1-1. Any project-specific safety factors such as, but not limited to, specialized training, inspection/monitoring, and confined space entry will be incorporated into the project budget.

13 Communication.

Appendix H summarizes the primary communication actions for the POL-MCX program.

13.1 Annual Report.

The POL-MCX will prepare an annual report for the HQUSACE proponent. The report will include a summary of major programs, activities and funds. The report will be on a fiscal year basis and will be completed and furnished to the proponent no later than 90 days after the end of the fiscal year.

13.2 Quarterly Newsletter.

The POL-MCX will prepare and distribute a quarterly newsletter to all USACE Districts, Centers, and Laboratories, as well as customers, agencies, and industry. The POL-MCX newsletter will supplement the ongoing AOR coordination performed by each Project Manager and provide a recurring reminder of the POL-MCX's technical support capability.

13.3 Evaluation

As discussed in 10.2, the geographic district will be requested to complete a customer satisfaction survey to assess the quality of POL-MCX products and services upon completion of work performed by the POL-MCX. The survey results will be utilized by the POL-MCX to improve processes, products and services as appropriate. The POL-MCX will distribute customer surveys and feedback forms to funding agencies near the end of each calendar year. Results from these evaluation will be incorporated into the POL-MCX annual report.

13.4 Document Storage

Projectwise and RMS will be used to store all final project-specific documents. Refer to the program-specific management plans in Appendices N-Q for additional document storage requirements.

14 Value Management.

14.1 Procedure.

The POL-MCX will reference the 2014 programmatic VE study on the DOD Fuels Facilities Program and Standards when performing a VE study on fuels-related projects (Appendix I).

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Appendix A

ER 1110-1-8167 Petroleum, Oil, and Lubricants Mandatory Center of Expertise dated 30 August 2016

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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

CECW-CE

ER 1110-1-8167

Regulation
No. 1110-1-8167

31 August 2016

Engineering and Design
PETROLEUM, OIL, AND LUBRICANTS
MANDATORY CENTER OF EXPERTISE

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31 August 2016

Engineering and Design
PETROLEUM, OIL, AND LUBRICANTS
MANDATORY CENTER OF EXPERTISE

1. Purpose. This regulation sets forth the policies, roles and responsibilities of the U.S. Army Corps of Engineers (USACE) Petroleum, Oil, and Lubricants (POL) Mandatory Center of Expertise (MCX), located within Omaha District (CENWO). It also prescribes the roles and responsibilities of USACE districts and their use of the POL-MCX in the execution of fueling systems projects from planning to construction.

2. Applicability. The regulation applies to all Headquarters, HQUSACE/Office of the Chief of Engineers (OCE) elements, major subordinate commands (MSC), district commands (Military and Civil), laboratories, and field operating activities and other Department of Defense (DOD) agencies required, or electing, to use POL-MCX services.

3. Distribution. Approved for public release, distribution unlimited.

4. References:.

a. AR 420-1, Army Facilities Management

b. Unified Facilities Criteria (UFC) 3-460-01, Design Petroleum Fuel Facilitities

c. Engineering Regulation (ER) 5-1-10, Corps Wide Areas of Work Responsibility

d. ER 1110-1-12, Quality Management

e. ER 1110-1-8158, Corps Wide Centers of Expertise Program

f. ER 1140-1-211, Support for Others: Non-Department of Defense Reimbursable Services

g. ER 1140-3-1, Support to Defense Department and Agencies

h. ER 5-1-10, Corps-Wide Areas of Work Responsibility

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

j. Memorandum of Agreement between Defense Logistics Agency Energy (DLA Energy), and the U.S. Army Corps of Engineers (USACE) for provision of specialized support for services requested by DLA Energy (June 2015).

k. Charter between HQUSACE POL Facilities Proponent and USACE POL-Technical Center of Expertise (TCX) designating POL-TCX as the Army proxy voting member for the Fuels Facility Engineering Panel (FFEP) activities (February 2015).

l. DoD Instruction 8510.01. "Risk Management Framework (RMF) for DoD Information Technology (IT)," March 12, 2014.

m. DoD Instruction 8500.01, "Cybersecurity," March 14, 2014.

5. History/Background. Omaha District has a history of leading USACE in the planning, engineering, design and construction of fueling systems. USACE formally established the POL Design Center in Omaha District in 1999 in response to requests for professional fuel design/technical services to support Army and Air Force installations. The POL Design Center later transformed into the POL-TCX in 2012. DOD agencies and executing agents utilized the POL-TCX to support fueling systems project execution due to the technical expertise and capabilities accumulated and maintained by experienced government fuels engineers. The limited number of fueling systems projects in any geographic district at any one time, compounded by the highly specialized nature of fueling systems design and construction, inhibits the development and sustainment of fueling systems planning, engineering, design, evaluation/assessment, and construction expertise across individual districts.

6. Mission. The POL-MCX provides highly specialized expertise in fueling systems planning, engineering, design and construction to USACE activities, the Army, and other DOD and non-DOD federal agencies.

7. Policy. All work identified hereinafter shall be executed, reviewed or otherwise controlled in accordance with ER 1110-1-8158 and ER 5-1-10.

8. Roles and Responsibilities.

a. HQUSACE. The Chief of Engineering and Construction, Civil Works Directorate (CECW-CE) is assigned oversight responsibility of the POL-MCX and assignment of a HQUSACE proponent. The headquarters proponent will work the POL-MCX to effectively and efficiently manage the CX program. HQUSACE will assure that adequate central funding is made available to cover all costs associated with the mandatory and optional centrally funded services as identified herein.

U.S. Army Corps of Engineers
POL-MCX proponent (CECW-CE)
441 G Street, NW; Washington, DC 20314
Phone: 202-761-4125
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b. USACE Major Subordinate Commands. In accordance with ER 1110-1-8158, each MSC is responsible for monitoring the activities of their districts and ensuring appropriate use of the POL-MCX for fueling systems planning, engineering, design and construction activities. The MSC is also responsible to ensure any proposed exceptions to the use of POL-MCX services are coordinated with POL-MCX. MSC will review any proposed exceptions to the use of POL-MCX services prior to submitting to HQUSACE (CECW-CE) for consideration.

c. USACE Districts. All geographic districts and the US Army Engineering and Support Center – Huntsville (USAESC) are responsible for engaging the POL-MCX in accordance with this ER and providing funding for execution of POL-MCX services. MILCON and Non-MILCON projects are executed by the geographic district within their area of responsibility utilizing support from the POL-MCX in accordance with this ER. Each geographic district is responsible for identifying and following any existing MOA's and other agreements (such as the June 2015 Memorandum of Agreement between Defense Logistics Agency Energy (DLA Energy) and the U.S. Army Corps of Engineers (USACE). Districts will include statements in their project documentation, signed by the Chief of the Engineering function, certifying that the POL-MCX has been appropriately used in the planning, design, and execution of the project per the support agreement(s) developed by the local district and POL-MCX. Geographic districts are responsible for performing the Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) review.

d. Omaha District. The Omaha District will provide the management, construction, and technical support to the POL-MCX that is necessary for the successful execution of the mission and function identified in this regulation. District leadership will assure that staffing levels in the POL-MCX are adequate to handle all tasks assigned in this regulation. Organizational and administrative support such as office space, contracting and computer hardware and software will be provided by the district as is done for other district organization elements. Mission and functions of the POL-MCX shall not be changed without the approval of the HQUSACE proponent.

e. POL-MCX. The POL-MCX will maintain state-of-the-art technical expertise in the planning, engineering, design, evaluation/assessment, and construction of fueling systems to provide the services and execute the responsibilities outlined within this regulation. The POL-MCX will serve as the Army proxy voting member for FFEP activities.

9. Definition of POL Fueling Systems.

a. Fueling systems that fall under the auspices of this ER would involve any component of a petroleum based fuel facility as identified below. Refer to UFC 3-460-01 for further description of fueling systems and components.

(1) Bulk fueling facilities.

(2) Fuels laboratories.

(3) Refueler parking and maintenance facilities.

(4) POL pipelines.

(5) Aircraft fueling facilities and associated infrastructure.

(6) Marine fueling facilities and associated infrastructure.

(7) Ground vehicle fueling facilities and associated infrastructure:

(a) Military service station.

(b) Retail gas station.

(c) Compressed natural gas vehicle service stations.

(d) Liquid propane vehicle service stations to include industrial equipment (e.g., forklifts).

b. Projects or components which do not fall under the auspices of this ER are:

(1) Natural gas systems (unrelated to motor vehicles).

(2) Propane systems (unrelated to motor vehicles).

(3) Projects solely for environmental remediation of POL contamination.

(4) Recurring Maintenance and Minor Repair, Marine Loading Arms, and Automation and Controls.

10. POL-MCX Services. Mandatory and optional services provided by the POL-MCX are outlined below and in Table B-1. The POL-MCX will provide such services when requested and funded by the geographic district or requesting entity.

a. Mandatory Services: Geographic districts with fueling systems projects are required to utilize the POL-MCX for various aspects of the planning, engineering, design and construction services. The POL-MCX may not refuse mandatory work without approval of the HQUSACE proponent.

(1) Planning Phase

(a) Review requirements documents and pre-design planning documents: The requirements document is used to validate the 1391 for funding and is sometimes referred to as a MILCON Project Development Brochure. POL-MCX review is required when this document is developed by USACE and must occur during all phases of review (e.g., draft, draft final, final, etc.). Any pre-design planning documents that serve the same function as requirements documents must be reviewed by the POL-MCX. This task is optional for projects with programmed amount under $1,000,000 USD.

(b) Review 1391: The 1391 is a DOD standard template used to communicate resource requirements for programming purposes. POL-MCX review is required when this document is developed by USACE and must occur during all phases of review (e.g., draft, draft final, final, etc.). This task is optional for projects with programmed amount under $1,000,000 USD.

(2) Contracting Services

(a) Contract source selection advisor: The POL-MCX shall serve as an advisor on source selection for any A-E contract. This task is optional for projects with programmed amount under $1,000,000 USD. This applies to any contract pertaining to fueling systems.

(3) Design Phase

(a) Review DOR design scope of work: The POL-MCX shall review any scope of work for a DOR (A-E or USACE) for design-build and design-bid-build contracts. POL-MCX review is required when this document is developed by USACE and must occur during all phases of review (e.g., draft, draft final, final, etc.). Districts will include statements in their project documentation, signed by the Chief of the Engineering function, certifying that the POL-MCX has been appropriately used in the planning, design, and execution of the project. This task is optional for projects with programmed amount under $1,000,000 USD.

(b) Review design documents: The POL-MCX shall review all design review submissions prepared by the DOR (A-E or USACE) for any USACE design-build and design-bid-build contract. This does not include participation in design review conferences. All comments provided by POL-MCX must be incorporated. Districts will include statements in their project documentation, signed by the Chief of the Engineering function, certifying that the POL-MCX has been appropriately used in the planning, design, and execution of the project. This task is optional for projects with programmed amount under $1,000,000 USD.

(4) Construction Phase

(a) POL-MCX training: The POL-MCX shall provide on-site construction quality assurance and control training specific to fueling systems construction/repair to identify critical features of work. Training typically takes one day and will vary based on project scope and complexity. Participants will include primary stakeholders of local district and contractors. This task is optional for projects with programmed amount under $1,000,000 USD.

(b) Attend final acceptance testing: The POL-MCX shall attend final acceptance testing of fueling systems. This task is optional for projects with programmed amount under $1,000,000 USD.

(5) Inspection/Assessment Phase

(a) Review aboveground storage tank inspection reports: The POL-MCX shall review all aboveground storage tank inspection reports prepared by USACE for tanks greater than or equal to 1000 gallons. The POL-MCX review is required for inspections performed in accordance with Steel Tank Institute (field and factory fabricated tanks) and American Petroleum Institute (field fabricated) guidance, and must occur during all phases of review.

(b) Review undergound storage tank inspection reports: The POL-MCX shall review all Underground storage tank inspection reports prepared by USACE for tanks greater than or equal to 1000 gallons. The POL-MCX review is required for inspections performed in accordance with Petroleum Equipment Institute (factory fabricated) and American Petroleum Institute (field fabricated) requirements, and must occur during all phases of review.

(c) Review project planning studies: A project planning study is a multi-phase method of executing a SRM project, consisting of deficiency identification, scope development, and field exection and acceptance testing. The POL-MCX review is required for project planning studies developed by USACE and must occur during all phases of review (e.g., draft, draft final, final, etc.).

(6) Standards and Criteria

(a) Develop and update standards and criteria pertaining to fueling systems defined in Section 9.a., to include the fuel standards (Pressurized Hydrant Fueling System (Type III), Pressurized Hydrant Direct Fueling System (Type IV and Type V), Cut'n'Cover Standards; fuel related Unified Facilities Guide Specifications; UFCs; AST Standards; and other specific Fueling Standards upon request by HQUSACE, the DOD Fuels Facility Engineering Panel, Defense Logistics Agency, Army Petroleum Center, Naval Facilities Engineering Command, Air Force Petroleum, Naval Supply Systems Command for Energy, and the Air Force Civil Engineer Center to support/accomplish. Funding will be provided by the requesting agency.

(b) Serve as the designated proxy voting member for all FFEP activities on behalf of the HQUSACE voting member (reference charter).

b. Optional Services. The following optional, non-mandatory services, are offered by the POL-MCX to support geographic districts with fueling systems projects for any facet of project development from planning, engineering, design to construction management upon request.

(1) Planning Phase

(a) Develop requirements documents and/or 1391: The requirements document is used to validate the 1391 for funding and is sometimes referred to as a MILCON project development brochure.

(2) Contracting Services

(a) Source selection board member: The POL-MCX is available to serve as a source selection board member on source selection for any USACE A-E, design-build, and design-bid-build contract for fueling systems.

(3) Design Phase

(a) Attend design charrette: The POL-MCX is available to participate on design charrettes as needed.

(b) Attend review conferences: The POL-MCX is available to participate in review conferences as needed.

(c) Perform design services: The POL-MCX is available to perform full design whether in-house or through the use of A-E contracts managed by the POL-MCX.

(4) Construction Phase

(a) Evaluation of RFI's and submittals: The POL-MCX is available to support designer of record (DOR) construction phase services.

(b) Perform construction oversight: The POL-MCX is available to provide a wide range of construction support services to support the geographic district.

(c) Review design modifications: The POL-MCX is available to review design modifications for any USACE design-build and design-bid-build contract.

(5) Inspection/Assessment Phase

(a) Review pipeline integrity reports: The POL-MCX is available to review all pipeline integrity reports prepared by USACE. These inspections are performed in accordance with American Petroleum Institute requirements.

(b) Pipeline and tank inspection: The POL-MCX is available to perform pipeline integrity inspections, aboveground storage tank inspection, and underground storage tank inspections. The POL-MCX is available to perform full design whether in-house or through A-E contracts managed by the POL-MCX.

(c) Review pressure vessel testing reports: The POL-MCX is available to review all pressure vessel testing reports prepared by USACE. These inspections are performed in accordance with American Petroleum Institute requirements.

(d) Review cathodic protection inspection reports: The POL-MCX is available to review all cathodic protection testing reports prepared by USACE. These inspections are performed in accordance with National Association of Corrosion Engineers requirements.

11. Architectural-Engineering (A-E) Services and Design-Build Contracts. Geographic districts are expected to utilize capable A-E firms suitably qualified for designing fueling systems. The POL-MCX will serve as an advisor to Source Selection Evaluation Boards (mandatory), and is available to serve as voting members of Source Selection Evaluation Boards (optional) and is available to consulting regarding A-E qualifications.

12. Method of Operation. The following lists the POL-MCX's method of operation and specific operational requirements for both POL-MCX and the requesting geographic district.

a. Organizational Structure.

(1) The POL-MCX Program is a matrixed organization that leverages fueling systems engineering, program management, project management, and construction expertise from across Omaha District elements as shown in Figure B-1.

(2) The POL-MCX Director is the Chief of Engineering Division and provides overall technical/engineering direction to the organization.

(3) The POL-MCX Program Manager/Technical Coordinator resides in Special Projects Branch, Planning, Programs, and Project Management Division and provides overall day-to-day program management direction to the program.

b. Work Acceptance.

(1) Requests for POL-MCX services can be submitted to the POL-MCX by telephone, by e-mail, or in writing. Informal communication is encouraged; however, before any reimbursable work commences the POL-MCX and the geographic district will develop a mutually acceptable scope of work, schedule and cost estimate for the efforts of POL-MCX. The actual costs for design reviews and the length of time for doing the reviews shall be negotiated between the geographic district and the POL-MCX due to each project being unique in size and complexity. Additional funding for travel and labor will be required for review conferences and site visits, when requested or required by the geographic district or customer. Funds shall be transferred to the POL-MCX prior to execution of requested or required services.

(2) The POL-MCX will assist in coordinating area of responsibility issues, roles and responsibilities, schedules and funding between the geographic district and their MSC in accordance with ER 5-1-10.

(3) The POL-MCX will coordinate with the geographic district through the POL-MCX Program Manager/Technical Coordinator to define the scope, schedule, and level of effort required of the POL-MCX for each work request. The POL-MCX Program Manager/Technical Coordinator will qualify work requests against the selection criteria outlined in this ER in coordination with the designers/engineers depending on the project scope. Once the work request has been accepted, the POL-MCX Program Manager/Technical Coordinator will accept the funds in CEFMS.

U.S. Army Corps of Engineers
POL-MCX Program Manager/Technical Coordinator
1616 Capitol Ave, Suite 9000
Omaha NE 68102-4901
Phone: 402-995-2180
E-mail: POL-MCX.FUELS@usace.army.mil

c. Administration and Funding for POL-MCX Services. Administrative requirements, including transfer of funds, are the same as those for any reimbursable work.

(1) The POL-MCX will develop a scope, schedule and cost estimate (budget) for services requested of the POL-MCX based on discussions between the POL-MCX and the requesting geographic district. The POL-MCX's services must be reimbursed at cost, and every effort will be made to stay within the project budget. The POL-MCX will immediately notify the geographic district when circumstances develop that impact the budget. The parties involved must mutually agree to any revisions made to scope and cost.

(2) Funding provided through HQUSACE to the POL-MCX and by other Agencies will be through a Funding Authorization Document (FAD). Funding by the geographic district is typically by cross-charge labor codes for labor and MIPR or FAD for other expenses (e.g., travel).

(3) Any excess funds remaining after project completion will be returned to the customer.

d. Annual Workload Assessment. Each year in November the POL-MCX will request the geographic districts to provide the best estimate of anticipated needs for POL-MCX services in terms of schedule and dollar value for the ensuing 2 to 5 year period. The POL-MCX will then meet with district representatives to discuss workload execution in order to facilitate and coordinate workload planning and provision of POL-MCX services.

e. Conflict Resolution. Conflicts or differences shall be resolved between the POL-MCX and the geographic district. If a conflict or difference develops that cannot be resolved by mutual agreement between the parties involved, it shall then be elevated to the Command's MSC for resolution. Finally because the POL-MCX is a Corps-wide asset, HQUSACE (CECW-E), if requested by either the POL-MCX or the MSC, will resolve the conflict or difference.

f. Evaluation. Upon completion of work performed by the POL-MCX, the geographic district will be requested to complete a customer satisfaction survey to assess the quality of POL-MCX products and services. The survey results will be utilized by the POL-MCX to improve processes, products and services as appropriate.

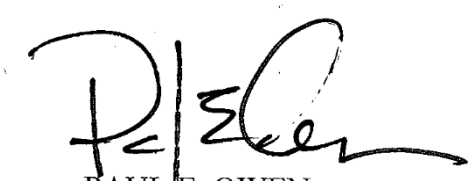
g. Annual Report. The POL-MCX will prepare an annual report for the HQUSACE proponent. The report will include a summary of major programs, activities and funds. The report will be on a fiscal year basis and will be completed and furnished to the proponent no later than 90 days after the end of the fiscal year.

13. Exceptions. A request for an exception to the requirements of this regulation shall be fully justified. The request shall be submitted to HQUSACE (CECW-E) in accordance with ER 1110-1-8158.

14. Recertification. The POL-MCX will be recertified as a POL-MCX every five years according to the requirements of ER 1110-1-8158 Appendix B. Six months prior to its recertification date, the POL-MCX shall provide the HQUSACE proponent a draft copy of the recertification document as outlined in the Appendix.

15. Agency Representation. The POL-MCX is authorized to represent the Corps on industry technical committees related to fueling systems, consistent with applicable ethics statutes and regulations.

FOR THE COMMANDER:



PAUL E. OWEN
COL, EN
Chief of Staff

2 Appendixes
Appendix A - Acronyms
Appendix B – Figure and Tables

APPENDIX A

Acronyms

A-E	Architect-Engineer
API	American Petroleum Institute
AST	Aboveground Storage Tank
CECW-CE	Chief of Engineering and Construction, Civil Works Directorate
CENWD	Northwestern Division, US Army Corps of Engineers
CENWO	Omaha District, US Army Corps of Engineers
CX	Center(s) of Expertise
DLA	Defense Logistics Agency
DOD	Department of Defense
DOR	Designer of Record
ER	Engineering Regulation
FFEP	Fuels Facility Engineering Panel
HQUSACE	Headquarters, US Army Corps of Engineers
IDIQ	Indefinite Deliverable Indefinite Quantity
MCX	Mandatory Center of Expertise
MIPR	Military Interdepartmental Purchase Request
MSC	Major Subordinate Command
NWD	Northwestern Division
OCE	Office of the Chief of Engineers
POL	Petroleum, Oil, and Lubricants
RFI	Request for Information
TCX	Technical Center of Expertise
UFC	Unified Facilities Criteria
UFGS	Unified Facilities Guide Specifications
USACE	United States Army Corps of Engineers
US	United States
USD	United States Dollars
USACE	US Army Corps of Engineers
USAESC	US Army Engineering and Support Center – Huntsville

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APPENDIX B

Figures and Tables

Figure B-1 – POL-MCX Organizational Chart

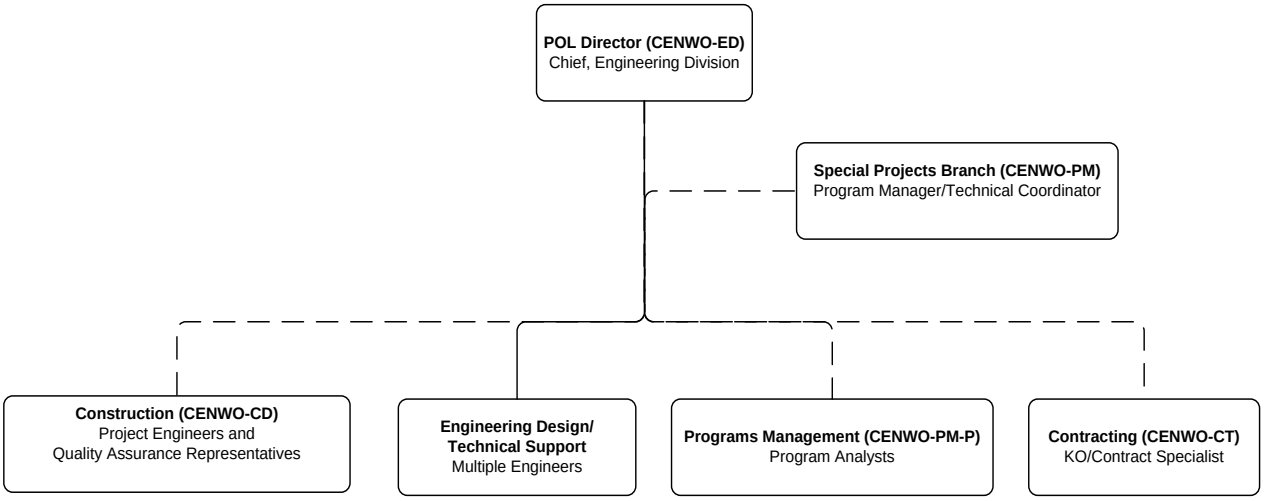

Table B-1 – Summary of Mandatory and Optional POL-MCX Services[1]

Service	Mandatory or Optional
Planning Phase	
• Review requirements documents and pre-design planning documents	Mandatory [2]
• Review 1391	Mandatory [2]
• Develop requirements documents and/or 1391	Optional
Contracting Services	
• Contract source selection advisor	Mandatory [2]
• Source selection board member	Optional
Design Phase	
• Attend design charrette	Optional
• Attend review conferences	Optional
• Review DOR design scope of work	Mandatory [2 4]
• Review design documents	Mandatory [2 4 5]
• Perform design services	Optional
Construction Phase	
• POL-MCX training	Mandatory [2]
• Evaluation of RFI's and submittals	Optional
• Attend final acceptance testing	Mandatory [2]
• Perform construction oversight	Optional
• Review design modifications	Optional
Inspection/Assessment Phase	
• Review pipeline integrity reports	Optional
• Pipeline and tank inspection	Optional
• Review pressure vessel testing reports	Optional
• Review aboveground storage tank inspection reports	Mandatory [3]
• Review underground storage tank inspection reports	Mandatory [3]
• Review cathodic protection inspection reports	Optional
• Review Project Planning Studies	Mandatory
Standards and Criteria	
• Develop and update standards and criteria	Mandatory
• Serve as the designated proxy voting member for all FFEP activities	Mandatory

Footnotes:
[1] Refer to Section 10 for guidance on Mandatory requirements.
[2] optional for projects with programmed amount under $1,000,000 USD.
[3] applicable to tanks equal to or greater than 1,000 US gallons.
[4] POL-MCX must receive copies of all submittals distributed for each design phase review.
[5] POL-MCX must review all design documents used for construction by USACE, regardless of Designer of Record.

Appendix B

Primary command and control for the POL-MCX

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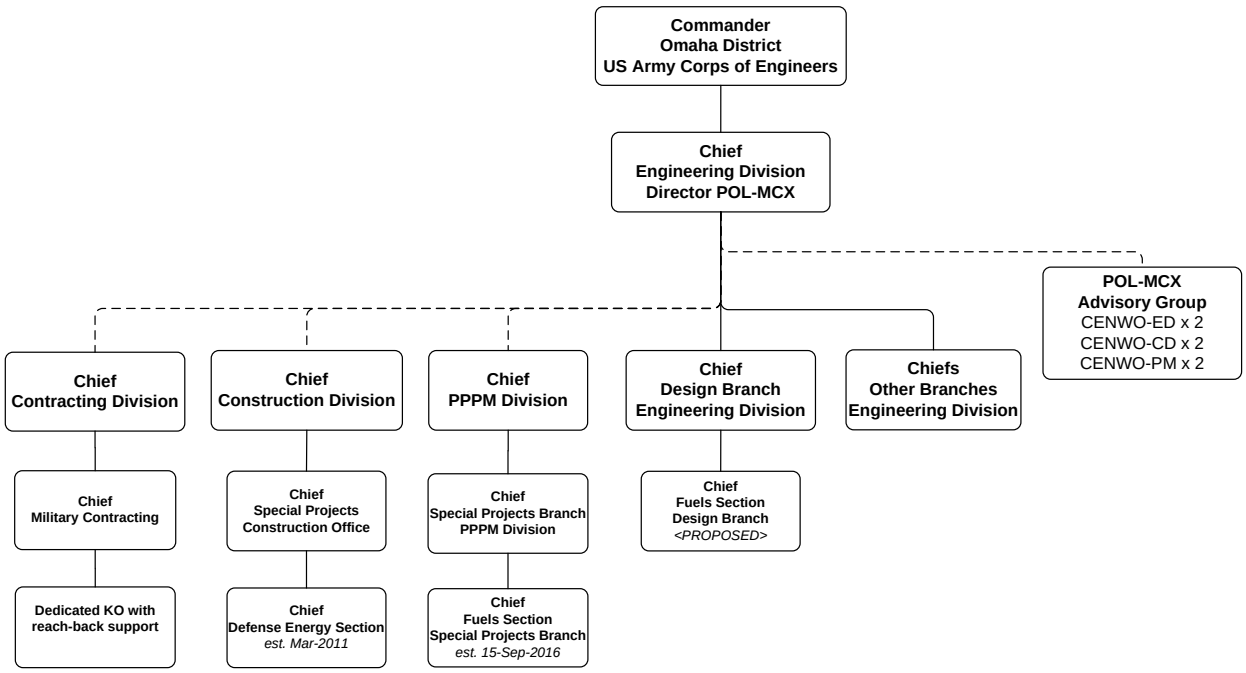
Primary command and control for the POL-MCX



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Appendix C

POL-MCX Interim POL-MCX Advisory Group memo

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CENWO-ED XX MMM YYYY

MEMORANDUM FOR RECORD

SUBJECT: POL-MCX Advisory Group

1. Effective DD MM YY, the Omaha District will establish the POL-MCX Advisory Group. The group will consist of the following offices and individuals:

Position	**Group**
Chief, Engineering Division (POL-MCX Director)	Chairperson, Non-Voting
Chief, Planning, Programs & Project Management Division	Vice Chairperson, Voting
Chief, Construction Division	Standing Member, Voting
Chief, Design Branch, Engineering Division	Standing Member, Voting
Chief, Fuels Section, Design Branch, Engineering Division	Standing Member, Voting
Chief, Fuels Section, Special Projects Branch, PPPMD	Standing Member, Voting
Chief, Defense Fuels Branch, Construction Division	Standing Member, Voting

Note: Other offices may be requested to attend committee meetings as needed to serve in an advisory capacity. Such offices will have no voting rights.

a. ER 1110-1-8167 (Petroleum, Oil, and Lubricants Mandatory Center of Expertise) dated 31 August 2016 establishes the Chief, Engineering Division of Omaha District as the POL-MCX Director. The POL-MCX Advisory Group will provide oversight to the POL-MCX as described below.

b. The POL-MCX Advisory Group will serve in an advisory capacity to the POL-MCX Director. The POL-MCX Director, as the position with ultimate responsibility for the POL-MCX, is the final authority on decisions made. The Advisory Group serves as the forum for implementation of POL-MCX activities including resolving issues and providing guidance to all USACE elements responsible for POL-MCX activities.

c. The period of responsibility will be indefinite.

d. The chairperson of the POL-MCX Advisory Group will report to the District Commander. All correspondence to the Advisory Group will be directed to the chairperson.

2. The POL-MCX Advisory Group will meet at least once each year, or more frequently if necessary, to perform the following functions:

   a. Review higher headquarters' directives and regulations applicable to the POL-MCX.

   b. Review status of the various elements of the POL-MCX (e.g., workload, contract status, project execution, inititiaves, customer requirements and feedback).

   c. Provide direction and guidance for implementation of the POL-MCX.

   d. Provide a forum for resolving issues and providing recommendations.

   e. Provide direction and guidance for substantial modification to POL-MCX processes and organizational structure.

   f. Provide oversight of the POL-MCX to ensure organizational staffing and funding is sufficient for program implementation.

3. POL-MCX Advisory Group member roles and responsibilities will be as follows:

   a. The POL-MCX Director will chair the POL-MCX Advisory Group and is responsible to ensure the POL-MCX is fully implemented in accordance with applicable regulations and POL-MCX Program Management Plan.

   b. The POL-MCX Program Manager will coordinate preparation of meeting agendas and ensure distribution of pertinent information to all committee members prior to scheduled meetings.

   c. The POL-MCX Program Manager will be responsible for acquiring the Advisory Group meeting room and preparing minutes of all Advisory Group meetings.

   d. Members will be prepared to discuss and offer suggestions or recommendations for topics included in the agenda.

   e. Issues will be resolved by a group consensus to the extent possible. In the event voting is necessary, each designated standing voting member will cast one vote (see paragraph 1 for a list of voting members). The POL-MCX Director is the final authority on decisions.

JOHN J. BERTINO, JR, P.E.
Chief, Engineering Division

Appendix D

POL-MCX roles and responsibilities

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POL-MCX Responsibility Assignment Matrix

Task		Project Team Members					Other Stakeholders					
Key: **R = Responsible** *(Those responsible for the performance of the task)* **A = Accountable** *(Those who assist completion of the task)* **C = Consulted** *(Those whose opinions are sought; and with whom there is two-way communication)* **I = Informed** *(Those who are kept up-to-date on progress; and with whom there is one-way communication)*		Engineering Division	Programs, Project, & Planning Division	Construction Division	Contracting Division	Geographic District	Customer	A-E Contractor (also Title 2)	Construction Contractor (D-B & D-B-B)	Installation Staff	HQUSACE Proponent	FFEP
Planning Phase	Review requirements documents and pre-design planning documents	R	A				I			C		
	Review 1391	R	A				I			C		
	Develop requirements documents and/or 1391	R	A				I			C		
Contracting Services	Request contract capacity from Omaha District Fuels contracts (A-E and design-build)	C	C		A	R						
	Contract source selection advisor	A	R		A	C						
	Source selection board member	A	R		A	C						
Design Phase	Attend design charrette	R	A			C						
	Attend review conferences	R	A			C						
	Review DOR design scope of work	R	A			C						
	Review design documents	R	A			C						
	Perform design services	R	A			C						
Construction Phase	POL-MCX training	R	A			A						
	Evaluation of RFI's and submittals	R	A			C						
	Attend final acceptance testing	R	A			C						
	Perform construction oversight	A	A	R		C						
	Review design modifications	R	A			C						
Inspection / Assessment Phase	Review pipeline integrity reports	R	A									
	Pipeline and tank inspection	R	A	A				A				
	Review pressure vessel testing reports	R	A									
	Review aboveground storage tank inspection reports	R	A	A								
	Review underground storage tank inspection reports	R	A	A								
	Review cathodic protection inspection reports	R	A									
	Review Project Planning Studies	R	A									
Standards and Criteria	Develop and update standards and criteria	R	A								A	C
	Serve as the designated proxy voting member for all FFEP activities	A	R								A	C
Reviews of Products Prepared by POL-MCX	Prepare Review Plan	R	A									
	Perform Self-Review	R	A									
	Continuous DQC	R	A									
Reviews of Products Not Prepared by POL-MCX	Prepare Review Plan	R	A			A						
	Continuous DQC	R	A			A						
Administration	Annual Workload Assessment		R			C	A					
	Conflict Resolution	R										
	Evaluation		R			A						
	Annual Report		R								I	
	Reporting		R			I					I	
	Work Acceptance	A	R	A	A							

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Appendix E

SRM Methodology

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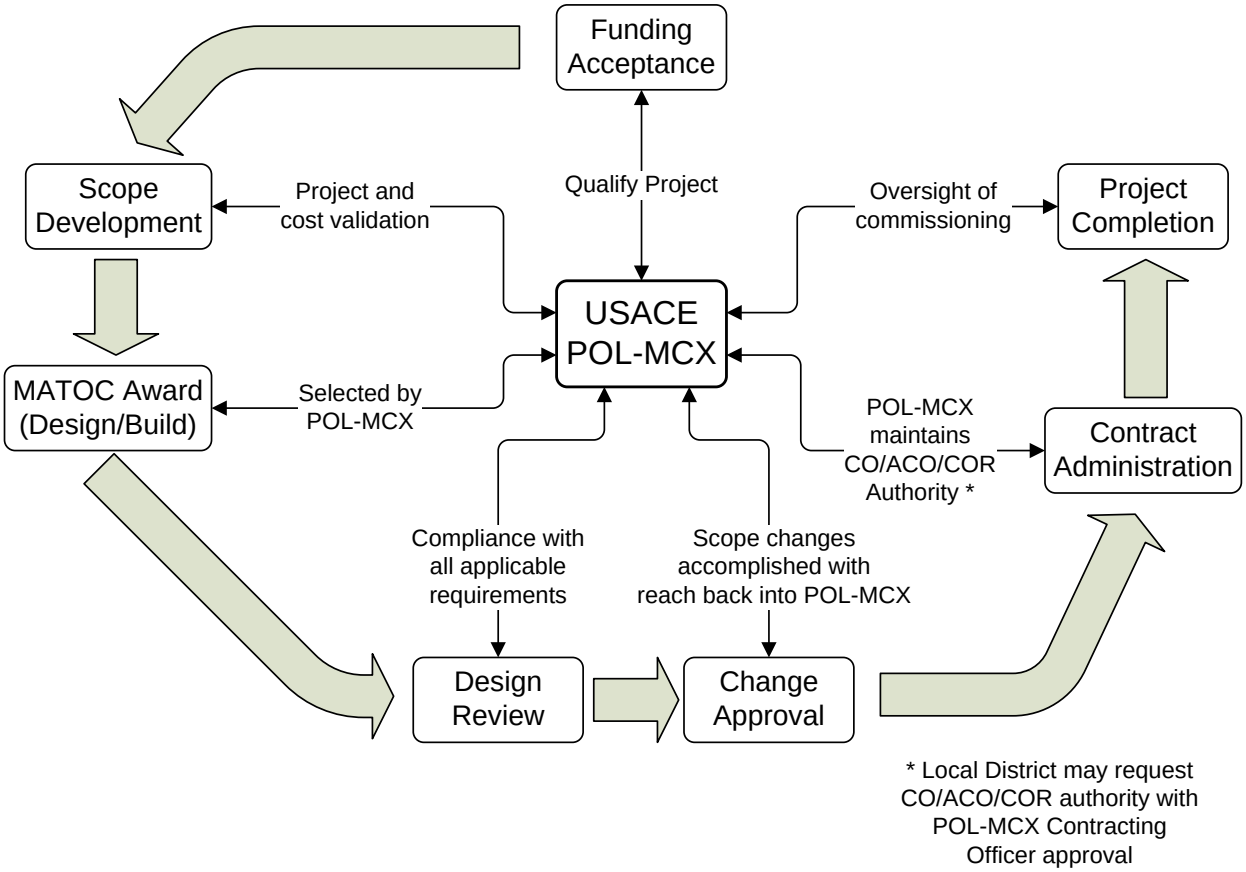
POL-MCX Fuels SRM Methodology.



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Appendix F

Assumptions, risks, and constraints

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ASSUMPTIONS AND RISKS

- Assume the POL-MCX program will operate as-is in the near term (no near-term program changes). [Risk = low]
- Assume stable funding sources (programmatic and project-specific). [Risk = low]
- Assume a large subcomponent of POL-MCX program will not end. [Risk = low]
- Assume commercialization is a low threat. [Risk = low]
- Assume changes will be planned and not emergent. [Risk = low]
- Assume any changes will be managed with sufficient amount of time to program and resource it. [Risk = low]
- Assume resourcing at programmatic level will be funded. [Risk = low]
- Assume funding agencies will define their program at higher levels. [Risk = low]
- Assume POL-MCX can work on civilian projects. [Risk = low]

CONSTRAINTS

- POL-MCX will execute all Army and some projects for AF, and some for Navy for DOD
- POL-MCX will develop and administer a training program for Districts to understand fueling system construction quality.
- POL-MCX will develop and maintain efficiencies in cost/scope/quality/risk to stay competitive in order to remain the premier fuel system professionals
- Reference Table B-1 of ER 1110-1-8167 for all mandatory and elective POL-MCX services.

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Appendix G

Quality Control Process for In-house Projects/Products

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US Army Corps of Engineers Omaha District	**08501 NWO** **Engineering Division Quality Control Process for In-house Projects/Products**	Northwestern Division

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1.0 Purpose. This document describes the design quality control process for engineering products developed for in-house projects by Omaha District's Engineering Division. In addition, where Omaha District is providing design support for a project or effort being managed by another entity (e.g., another District), Engineering Division will continue to implement and integrate appropriate Omaha District design quality control processes into the overall design quality control process for that project/product. Engineering Division is ultimately responsible for the quality control and quality assurance of all engineering and design products produced.

2.0 Applicability. This process applies to the in-house production of all studies, reports, designs, design documents, and contract documents. It provides the general framework for required quality activities. Project-specific requirements and sequencing of quality activities will be defined in an individual Quality Management Plan (QMP), which is part of each project's Project Management Plan (PMP). This process will reside on the NWO Quality Management System (QMS) site and is applicable to all Omaha District staff. Notifications of revisions to this process will be sent via e-mail to all District staff.

3.0 References.

Engineer Circular (EC) 1165-2-209, Civil Works Review Policy
EC 1165-2-209, Civil Works Review Policy, Change 1

Engineer Pamphlet (EP) 415-1-260, Resident Engineer Management Guide
EP 715-1-7, Architect-Engineer Contracting in USACE
Engineer Regulation (ER) 5-1-11, U.S. Army Corps of Engineers (USACE) Business Process
ER 415-1-11, Biddability, Constructability, Operability, and Environmental Review
ER 1110-1-12, Quality Management
ER 1110-1-8152, Professional Registration and Signature on Design Documents
ER 1110-2-1150, Engineering and Design for Civil Works Projects
ER 1110-345-100, Design Policy for Military Construction
ER 1110-345-700, Design Analysis, Drawings and Specifications

4.0 Related Procedures.

08500 NWO Value Engineering Program Management Plan
08502 NWD EC 1165-2-209 Civil Works Review Policy Guidance
ES-02001 Project Management Plan Preparation
ES-08007 Engineer of Record and Design Responsibility
ES-08020 Biddability, Constructability, Operability, and Environmental (BCOE) Review

5.0 Definitions.

Customer. Any government or civilian organization/entity or person requesting a planning, engineering, or construction product or service from the U.S. Army Corps of Engineers (USACE), and for which consideration is granted. Customers may be either external or internal to USACE such as a local sponsor, owner, client, or user.

Design Quality Control Plan (DQCP). The document that defines how quality control will be implemented for Engineering Division products. This plan can be integrated into a project's overall quality control plan for all disciplines or serve as a standalone document in the absence of an overall project quality control plan.

Engineering Products. For purposes of this process--studies, reports, design documentation reports, drawings, technical appendices, specifications, and other major work products or decision documents. These types of documents require approval by the Chief of Engineering Division. Other products or efforts may be approved at a level below the Chief of Engineering Division.

Project Management Plan (PMP). A document required for the execution of all work, in accordance with ER 5-1-11. The PMP identifies the scope, schedule, and resources needed to accomplish the work. The PMP also contains the Quality Management Plan (QMP), which consists of the Quality Control Plan (QCP) and Quality Assurance Plan (QAP), as illustrated below.

- Project Management Plan (PMP)
  - ► Quality Management Plan (QMP)
    - Quality Control Plan (DQCP would be incorporated in the QCP)
    - Quality Assurance Plan (QAP)

Quality Assurance (QA). The process to evaluate and verify the effectiveness of quality control processes on both a product-specific and a systematic basis.

Quality Assurance Plan (QAP). The quality assurance component of the QMP that defines how quality assurance will be executed for products and services that are completed by outside resources, including architect-engineer (A-E) contractors as well as other USACE Districts or government agency.

Quality Control (QC). That part of quality management focused on fulfilling quality requirements of a project, product, service or process. It includes those processes used to ensure performance meets agreed upon customer requirements that are consistent with law, regulations, policies sound technical criteria, schedules, and budget.

Quality Control Plan (QCP). A component of the QMP and PMP. The QCP is a written plan that defines how quality control will be executed for products.

Quality Management Plan (QMP). The quality component of the PMP. The document that specifies QC and QA processes appropriate to the size, complexity, and nature of the project. The QMP will include the project's QCP and QAP, which identify the quality control and quality assurance requirements for the overall project, including work performed by contractors, as applicable.

Scope of Work (SOW). A document that defines the work to be performed, deliverables, schedule milestones, and budget requirements. It describes the expectations of the customer and is the document used when negotiating for the development of products.

6.0 Responsibilities.

Customer.

- Participate in developing and defining the project objectives and scope of work (SOW) and authorize modifications to the SOW.
- Participate in product quality control/technical reviews.

Engineering Division Chief.

- Responsible for overall quality of Engineering Division products and implementation of the quality control program within Engineering Division.

Engineering Division Branch Chief Quality Management Board.

- Provide direction, policies, and guidance for implementation of Engineering Division's quality program.
- Review and monitor status of Engineering Division's quality program (e.g., processes, implementation, assessments, etc.).
- Approve generic or programmatic Design Quality Control Plans.
- Resolve quality issues brought to the Board's attention.

Engineering Division Branch Chiefs.

- Develop and maintain quality procedures for their functional areas.
- Serve on the Engineering Division Branch Chief Quality Management Board.
- Ensure quality procedures are followed and project objectives are met.
- Review and approve DQCPs.
- Approve appropriate Project Delivery Team (PDT) members and the Technical Lead for projects based on factors such as project scope, complexity, and team member experience and expertise.

Engineering Division Section Chiefs.

- Develop and maintain quality procedures for their functional area.
- Ensure compliance with quality procedures.
- Ensure quality of engineering products.
- Ensure staff's technical adequacy technical competency for the work assigned.
- Review and approve DQCPs.
- Select appropriate PDT members and the Technical Lead for projects based on factors such as project scope, complexity, and team member experience and expertise.

Technical Lead (e.g., Lead Engineer).

- Responsible for overall Engineering Division product quality.
- Serve as primary point of contact for technical and quality issues related to the project.
- Ensure that sufficient engineering detail is included in the PMP.
- Lead development of the DQCP for Engineering Division.
- Ensure compliance with the DQCP throughout project execution.
- Establish content requirements and organization of engineering products.
- Coordinate technical activities of various engineering disciplines.
- Facilitate technical review conferences, interdisciplinary reviews, plan-in-hand reviews, and resolution of review comments.
- Maintain record copies of quality control documentation, as provided for in the DQCP (e.g., DQCP, review comments, marked-up drawings, certifications, etc.).

Project Delivery Team (PDT).

- Provide quality work products and services.
- Responsible for the adequacy and safety of design.
- Participate in the development of the project PMP, to include the DQCP.
- Ensure appropriate reviews, as required in the DQCP, are performed and documented.
- Interface with other functional disciplines and coordinate designs across functional areas to ensure quality of the entire product.
- Identify and elevate key issues at project startup and throughout product development.
- Furnish pertinent project documents to the Project Manager (PM) for the project file.

Project Manager (PM).

- Coordinate with Section and Branch Chiefs to assemble the PDT.
- Coordinate overall efforts of the PDT.
- Lead the PDT in developing the PMP and QMP.
- Coordinate and document appropriate changes in the PMP as the project develops.
- Ensure QC reviews are appropriately funded and scheduled.
- Maintain the project file, to include all QC-related documentation.
- Complete project closeout activities.

7.0 Procedures.

7.1 Project Management Plan and Design Quality Control Plan. In accordance with ER 5-1-11, all projects will have a PMP. A PMP will be developed at the initiation of the project under the direction of the PM. The Technical Lead (e.g., Lead Engineer) is responsible for coordinating with the PM and PDT to ensure adequate engineering support is provided during the development of the PMP. The Technical Lead is also responsible for leading the development of the DQCP for Omaha District Engineering Division reviews. The DQCP can be integrated into a project's overall quality control plan for all disciplines or serve as a standalone document in the absence of an overall project quality control plan. The PM will coordinate requirements for any additional reviews required (e.g., Independent External Peer Review, Agency Technical Reviews, etc.), and these will be incorporated into the overall QMP. See 08502 NWD EC 1165-2-209 Civil Works Review Policy Guidance for additional information regarding appropriate levels of product review.

7.1.1 Project Management Plan. The PMP serves to identify the scope, schedule, and resources needed to accomplish project/program execution and associated coordination with the customer. The PM will lead the overall development of the PMP. The PM and PDT, to include the customer, will develop and maintain the PMP at a level of detail commensurate with the scope of the project. To be an effective management and communication tool, the plan must be a living document that is updated as conditions change. The PM will coordinate any changes to the project with the customer and the PDT and will update the PMP as appropriate. The PMP consists of sections on communications, risk, quality, acquisition, and change strategies for managing the project, among other topics.

The Technical Lead will ensure that the following information is incorporated into the PMP in the appropriate level of detail:

- Scope of work
- Required products/submittals (e.g., study reports, design documentation reports, plans, specifications, O&M manuals, etc.)
- Budgets, which include funding for quality control reviews
- Schedules, which include time for quality control reviews
- Quality Management Plan
- ✓ QCP (incorporates the DQCP for District-level technical quality control reviews)

7.1.2 Design Quality Control Plan. All engineering and design products will be prepared using a product-specific, generic, or programmatic DQCP. As indicated previously, this plan can be integrated into a project's overall quality control plan for all disciplines or serve as a standalone document in the absence of an overall project quality control plan. The Engineering Division PDT representatives, under the lead of the Technical Lead, will develop the DQCP.

Quality control is a continual process of reviews and associated documentation that occurs throughout the product development process. The quality control process of reviews and associated documentation will remain generally the same for all projects/products. However, review requirements are scalable and the DQCP will be tailored to the needs of each individual project/product based on the scope, complexity, risk, cost, staff experience, etc. For example, a complex project with high potential for loss of life if a failure occurred will require a product-specific DQCP that potentially calls for multiple rounds of internal reviews at different stages of product development, whereas a routine, low cost and low risk project may be covered under a programmatic DQCP and require only a single round of reviews. Refer to Attachment 14 for a risk register that could be used to help define project issues, complexity, risk, cost, designer experience, etc. to assist in determining the appropriate level of review. Reviews may also be consolidated, as appropriate, to speed the review process (e.g., combining the Supervisory Interdisciplinary Review and BCOE Reviews). Supervisors will select the individuals to perform the reviews based on factors such as project scope, complexity, and size; sponsor/customer expectations; public scrutiny; life safety; technical expertise required; etc. Larger, more difficult, risky, or complex projects will be reviewed by more experienced staff.

- **Product-Specific DQCP.** Products for non-routine, high-risk, unique, and/or complex projects will use a product-specific DQCP. The DQCP should include, as a minimum, the items listed in Attachment 1. An example of a product-specific DQCP is provided in Attachment 2. DQCPs will be reviewed by the Section Chief of each technical discipline on the PDT and will be approved by the Branch Chief for the Lead Technical Organization. A DQCP Review and Approval Certification Form will be completed for each DQCP (see Attachment 3).

- **Generic or Programmatic DQCP.** Routine, minor, and/or low-risk products may use generic DQCPs. Similarly, programmatic DQCPs may be developed and used for ongoing or continuous programs. In either case, the use of generic or programmatic DQCPs will be approved by the Engineering Division Branch Chief Quality Management Board. Generic or programmatic DQCPs

will be developed by the Lead Technical Organization, reviewed by the Section Chief of each technical discipline providing support under the DQCP, and approved by the Branch Chief for the Lead Technical Organization. After initially approved, a short supplement to the DQCP will be developed for each project for which a generic or programmatic DQCP is used. This supplement will provide project-specific details, including project description, PDT and review team members, review schedule, costs, and any other information as needed. The supplement to the DQCP will be developed and approved by the Branch Chief for the Lead Technical Organization for the project. The Lead Technical Organization's Branch Chief may delegate approval authority of the supplements to Section Chiefs. For example, a programmatic DQCP that outlines the required reviews and review process, among other items, may be developed for Section 14 projects. Then, once a specific Section 14 project is subsequently initiated, a supplement will be prepared that identifies the project, PDT members, reviewers, etc. consistent with the approved DQCP. A DQCP Review and Approval Certification form will be completed for each generic or programmatic DQCP developed (see Attachment 3).

7.2 Design Quality Control. The individual designers are ultimately responsible for the overall adequacy and safety of the product/design (refer to ES-08007 Engineer of Record and Design Responsibility). Throughout product development, Engineering Division will use several types of internal reviews to ensure product quality. The type and number of reviews, or review cycles or phases, along with the level of reviewer experience/qualifications, are scalable and will be based on the project's complexity and risk and defined in the DQCP. If it is determined that not all of the reviews indicated below in paragraphs 7.2.2 through 7.2.6, 7.3 and 7.4)are appropriate for a given project/product, the DQCP will include a brief justification for why that review(s) will not be performed. Refer to the flow chart in paragraph 10 that illustrates the general type and sequence of reviews.

7.2.1 Products To Be Reviewed. At each required review, the products that will be subject to review and their associated level of completeness will be defined so that all parties have an understanding of requirements. For example, the DQCP for a 30% design PDT Interdisciplinary Review may require that the design documentation report, plans, specifications, and operations and maintenance (O&M) manual be available for review with a stated level of detail expected. The Omaha District Design Guide (Refer to Design Branch, Engineering Division for the current Omaha District Design Guide) provides some information regarding submittal requirements for different levels of design for different types of projects.

7.2.2 Peer Review/Design Check. Peer Reviews/Design Checks are reviews of each designer's assumptions, analyses, calculations, and other products that are performed internal to the PDT member's section/technical discipline throughout the product development process. Peer Reviews/Design Checks will be scheduled and performed by qualified reviewers prior to completion of various stages of product development (e.g., 30%, 60%, and 90% design milestones), as appropriate, based on the project's complexity and risk. The review should include an evaluation of the correct application of methods, validity of assumptions, adequacy of basic data, correctness of calculations, completeness of documentation, and compliance with guidance, criteria, and standards. All checked drawings, computations, and analyses shall be annotated to show the initials of the designer/originator and the reviewer. Design checklists should be developed by each functional

discipline to strengthen the Peer Review/Design Check process. A Peer Review/Design Check Certification form will be completed for each review (see Attachment 4).

7.2.3 PDT Interdisciplinary Review. A PDT Interdisciplinary Review is a multidisciplinary review performed by the PDT to ensure that the product meets project scope and objectives and that all elements are properly integrated and compatible. This type of interlocking review and interaction between technical disciplines, construction, and customers or other stakeholders, as needed, is necessary throughout the product development process to ensure that the product is being conceived and developed in a holistic manner. Although this is an ongoing process throughout product development, formal PDT Interdisciplinary Reviews will be conducted at various stages of product development (e.g., 30%, 60%, and 90% design), as appropriate, based on the project's complexity and risk. PDT members will be knowledgeable about the critical project requirements of all their PDT counterparts, understand how their own particular project elements and work relates to and affects those requirements, and conduct their reviews to ensure consistency and effective coordination across all project disciplines. A PDT Interdisciplinary Review Certification form will be completed for each such review (see Attachment 5).

7.2.4 Plan-in-Hand Reviews. For products that will result in a construction contract, the PDT may conduct a review(s) of the site, comparing the plans with the current site characteristics, where appropriate. This review is to determine if any significant changes to the site such as topographic or utility alterations have occurred or other conditions are present that would impact the final product. A Plan-in-Hand Review Certification form will be completed for each such review (see Attachment 6).

7.2.5 Supervisory Interdisciplinary Review. A Supervisory Interdisciplinary Review is similar to the PDT Interdisciplinary Review except that it will be conducted by the supervisors of the technical disciplines that are on the PDT or by their designated representatives who are not involved in the day-to-day production of a project/product. The review will ensure that the product meets project scope and objectives, that all elements are properly integrated and compatible, and that proper application of established criteria, regulations, laws, codes, principles, and professional practices has occurred. Supervisory Interdisciplinary Reviews will be conducted at various stages of product development (e.g., 30%, 60%, and 90% design), as appropriate, based on the project's complexity and risk. A Supervisory Interdisciplinary Review Certification form will be completed for each such review (see Attachment 7).

7.2.6 Biddability, Constructibility, Operability, and Environmental (BCOE) Reviews. For products that will result in a construction contract, BCOE Reviews will be conducted in accordance with ER 415-1-11. As indicated in the ER, input from Construction Division and Operations Division personnel is desirable throughout the design process to allow incorporation of constructability or operational comments during design development. Formal or informal BCOE Reviews may be conducted periodically throughout the design process to accommodate this type of continuing input. A final BCOE Review will be conducted near product completion and may be performed concurrent with the final Supervisory Interdisciplinary Review. A Biddability, Constructability, Operability, and Environmental Review Certification Form will be completed for each project (see Attachment 8).

7.3 Value Engineering Study. A Value Engineering (VE) study may be required, as outlined in 08500 NWO Value Engineering Program Management Plan. If a VE study is required, it should be incorporated into the overall project schedule.

7.4 Lessons Learned Review. To the extent practicable, a post construction review of the product should be conducted to assess constructibility and functionality issues to allow the District to capture lessons learned and improve future products. The timing and extent of such a review will vary and may not be performed on all projects. In some instances, the review may be limited to an assessment of the contract documents and any issues that developed during construction. For a vertical construction project, the review may occur several months after occupancy so that input from both construction elements and building users can be obtained.

7.5 Other Required Reviews. Depending on the product, additional reviews may be required outside of the internal design quality control process (e.g., legal reviews, agency technical reviews, independent external peer reviews, etc.). The need for any such reviews will be defined in the PMP's QMP. The QMP will define the interrelationship between any such reviews and design quality control reviews and product approvals.

7.6 Final Engineering Division Product Approval. The Chief of Engineering Division will approve significant in-house Engineering Division final products before external release through the signing of the Product Completion Certification Form, BCOE Certification Form, BCOE Waiver, and/or drawings, as applicable. Significant Engineering Division final products include studies, reports, design documentation reports, drawings, specifications, and other major work products or decision documents. Other products or efforts may be approved at a level below the Chief of Engineering Division (i.e., Branch Chief and Section Chief levels). The Chief of Engineering Division may also delegate approval authority for programs or types of products to Engineering Division Branch Chiefs. Requests for final approval will be accompanied by the product, the DQCP, review certifications, and other appropriate documents (see Chief of Engineering Division Approval Checklist, Attachment 13).

7.6.1 Product Completion Certification. A Product Completion Certification form will be completed by the PDT once all required reviews are completed, all significant conflicts and comments have been resolved, and the final product is ready for approval by the Chief of Engineering. The Engineering Division Branch Chief(s) of the major project feature(s) will also sign the form to attest that the product is complete and in general compliance with established policy, criteria, and engineering practice and that appropriate quality control processes have been followed. The Chief of Engineering Division will be the final signatory on this document and his/her signature indicates approval of the product. (See Attachment 9.) The use of this form may be expanded to cover approval of the final product from other Divisions/Branches (e.g., Planning), as appropriate. The approval process should be defined in the QMP.

7.6.2 BCOE Certification. Prior to advertisement of construction contracts, a BCOE Certification will be completed (see Attachment 10 or equivalent). The Chief of Operations Division (applicable to Civil O&M projects only), Chief of Construction Division, and Chief of Engineering Division will sign the certification. If circumstances require that a project be advertised before the BCOE Certification can be completed, a BCOE Waiver will be prepared (see Attachment 11). Phased and

fast-tracked products will require a BCOE Certification for each phase or package. For instance, two-phase requests for proposals (RFPs) would require a BCOE Certification for each phase (the initial RFP and the technical amendment). If fast tracked, a BCOE Certification would be required for each design package. Clarification on specific requirements for individual projects should be sought from the Branch Chief of the major project feature.

7.6.3 Construction Drawings Approval. The Chief of Engineering Division, as a registered professional, will sign the drawing signature block after all involved Engineering Division Branch Chiefs have signed. This endorsed signature block will subsequently be placed on the drawing cover sheet, thereby approving the final drawing set. (See Drawing Cover Sheet Signature Block, Attachment 12.) Individual drawing sheet title blocks will be appropriately filled out to include the designer and the appropriate Section Chief who are submitting and approving the drawing. Sealed documents may be requested. Stamping/sealing documents will be done in accordance with ER 1110-1-8152.

7.6.4 Design-Build Requests for Proposals (RFPs). The Chief of Engineering Division will generally not sign drawings for design-build RFPs, unless some portions of the design were completed in-house and included as contract requirements.

7.7 Quality Control Documentation. The Design Review and Checking System (DrChecks) will be used to place all *significant* comments generated during PDT interdisciplinary, supervisory interdisciplinary, and BCOE reviews. DrChecks provides a centralized location to conduct reviews and document review comments, responses, and back checks. Marked-up calculation sheets, drawings, and documents (e.g., design documentation reports, specifications, etc.) will also be used to convey reviewer comments to the designers, as appropriate. The documentation to be placed in the QC file, which will be maintained by the Lead Technical Organization, should be defined in the DQCP and may include the following items.

- The final PMP with the DQCP
- Review, certification, and/or approval forms
- DrChecks review report
- Marked-up calculation sheets, drawings, documents (e.g., design documentation reports, specifications, etc.), and checklists
- Other review comments and associated resolutions
- Final product(s)

7.8 Quality Control Checklists. Checklists may be used to guide reviews and ensure that critical items are not overlooked. Checklists may also be used to simplify the documentation of the review. The use of checklists in the documentation does not, however, eliminate the requirement to document specific comments. The development, maintenance, and/or use of checklists to assist in quality control reviews and/or the design process are at the discretion of each technical organization.

8.0 Records and Measurements. This process produces drawings, specifications, design analysis, and various planning and engineering reports and study documents. Formal submissions for review constitute a record. The PM for each project shall maintain project files, including project correspondence, memorandums for record (MFRs), PMPs, and DQCPs, in accordance with the PMP.

PDT members are to furnish pertinent project documents to the PM for the project file. The Technical Lead will maintain a copy of all design quality control documentation.

Type	Description	Responsible Office	Location	Record Media	Retention	Disposition
R	Drawings, specifications, design analysis, and any related planning, engineering , product surveys, and/or study documents	Project Management	PM Project Files	E or P	1 year after final project completion, including all phases	Send to records holding
R	Design quality control documentation	Lead Technical Organization	Project Files	E or P	3 years after final project completion, including all phases	Send to records holding

Description of Terms

Type:
R Record
M Measurement

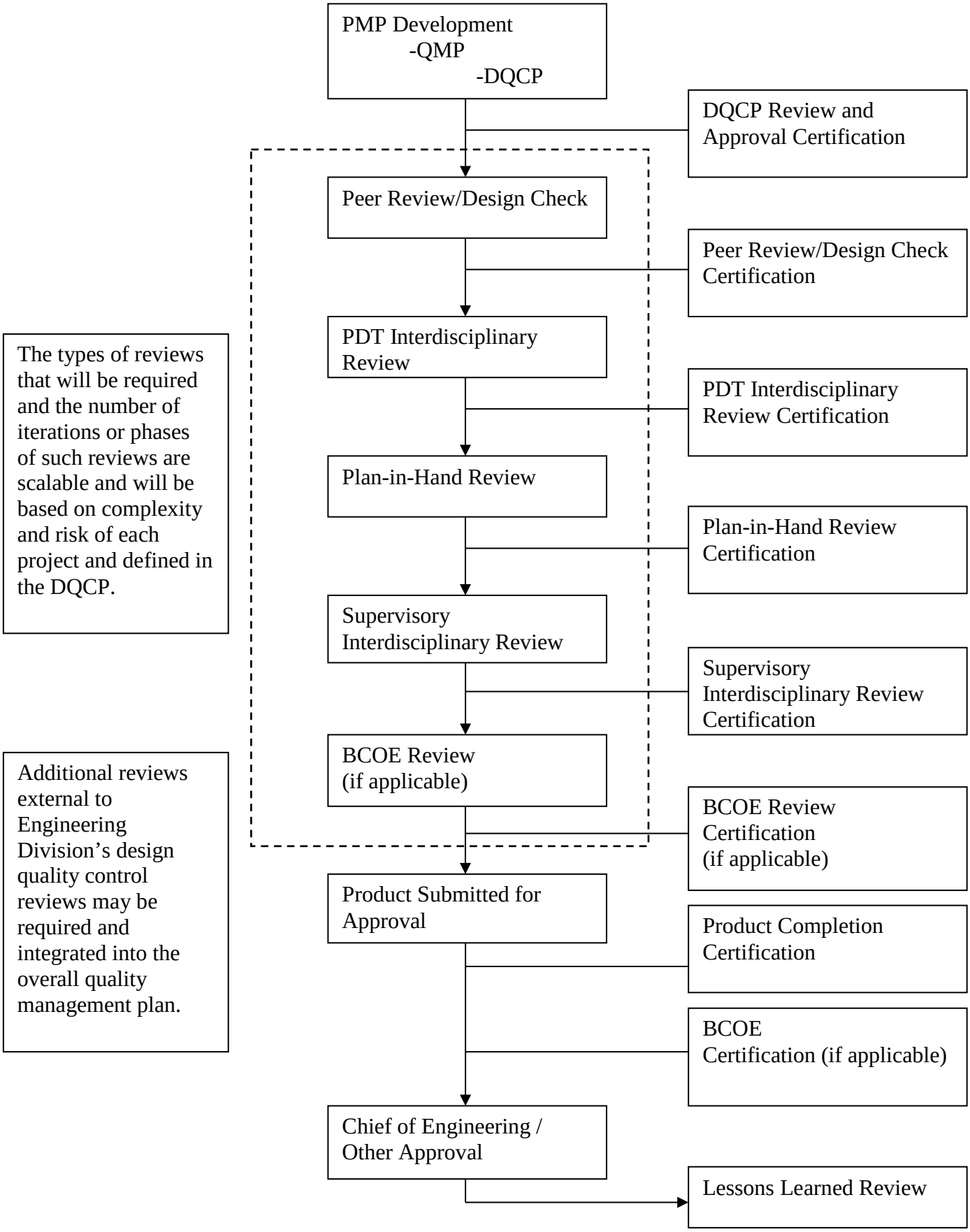
Record Media:
E Electronic
P Paper

9.0 Attachments.

Attachment 1, Design Quality Control Plan Requirements
Attachment 2, Example Design Quality Control Plan
Attachment 3, DQCP Review and Approval Certification
Attachment 4, Peer Review/Design Check Certification
Attachment 5, PDT Interdisciplinary Review Certification
Attachment 6, Plan-in-Hand Review Certification
Attachment 7, Supervisory Interdisciplinary Review Certification
Attachment 8, BCOE Review Certification
Attachment 9, Product Completion Certification
Attachment10, BCOE Certification
Attachment 11, BCOE Waiver
Attachment 12, Drawing Cover Sheet Signature Block
Attachment 13, Chief of Engineering Division, In-House Developed Products Approval Checklist
Attachment 14, Risk Register and Risk Matrix

10.0 Flow Chart. See the next page.

GENERAL OVERVIEW OF DESIGN QUALITY CONTROL PROCESS



Attachment 1

Design Quality Control Plan Requirements

The DQCP will include the following information at a minimum.

1 . General Information

1.1 Project Name
1.2 Project Location
1.3 Customer
1.4 Project Type (e.g., Section 205 Planning Study, MILCON, etc.)
1.5 Brief Project Description (1-2 sentences)
1.6 Deliverables (e.g., plans, specifications, cost estimate, O&M plan, DDR)
1.7 Current Working Estimate (estimated cost of project)
1.8 Design Budget (overall design budget of $x, of which $x is Engineering Division)

2 . Project Definition and Risk Assessment (overall project scope/magnitude, anticipated or potential challenges or issues (technical, funding, schedule, political, etc.), sensitive or high visibility items, issues/concerns requiring special attention, etc

2.1 Project Risk and Complexity
2.2 Project Schedule Risk

3 . Design Quality Control Review Requirements

3.1 General
3.2 Reviews
3.3 Quality Control Documentation and Retention
3.4 Value Engineering Study
3.5 Final Engineering Division Product Approval
3.6 Forms

4. PDT Information

4.1 Project Manager
4.2 Technical Lead and Lead Technical Organization
4.3 Engineering Division Project Delivery Team
4.4 Engineering Division Design Review Team(s)

Attachment 2

Example Design Quality Control Plan

Provided on the following page is an example of a DQCP. Each DQCP will be tailored to the needs of each individual project/product based on the scope, complexity, risk, cost, staff experience, etc.

ENGINEERING DIVISION
EXAMPLE DESIGN QUALITY CONTROL PLAN

EXAMPLE PROJECT
Date

1. GENERAL INFORMATION. Provided herein is Engineering Division's Design Quality Control Plan (DQCP) for the subject project. The DQCP requirements will be incorporated into the overall Project Management Plan (PMP) for the project.

1.1 Project Name: Example Project

1.2 Project Location: Missouri River Mile 1000, Nowhere County, Nebraska

1.3 Customer: Internal, Missouri River Recovery Program

1.4 Project Type: Missouri River Recovery Program Shallow Water Habitat

1.5 Project Overview: Reconfigure an existing backwater to create a flow through chute. The newly created chute will be located adjacent to a federal levee system.

1.6 Deliverables: Plans, Specifications, cost estimate, O&M Manual, and Project Information Report

1.7 Current Working Estimate: $5M

1.8 Design Budget: Overall design budget of $300K, which approximately $150K is Engineering Division.

2. PROJECT DEFINITION AND RISK ASSESSMENT

2.1 Project Description: This is a shallow water habitat (SWH) creation project being implemented through the Missouri River Recovery Program. Development of SWH is a requirement of the 2003 Biological Opinion and this project will result in the creation of additional acreages of SWH that will be applied towards the total acreage requirements.

The site is located in Nowhere County, Nebraska on the right bank of the Missouri River at approximately River Mile 1000. The site is located on approximately 500 acres of federally owned floodplain land purchased for the Missouri River Recovery Program. Missouri River Levee Unit N-1000, Federally constructed and locally owned and operated levee, transects the property. The Missouri River in this reach has been altered to provide a navigation channel under the Missouri River Bank Stabilization & Navigation Project. A large industrial facility sits on the river approximately one mile upstream of the site.

The Corps completed construction of a backwater between the levee and river at the project site in 1950. This was a deviation from the original design for the project that called for a flow through chute. The design was changed from a chute to backwater due to the inability to acquire real estate for the chute entrance upstream of the boundaries of the current project. In addition, the industrial facility was in the process of relicensing their facility at the time of original construction and had concerns related to water quality downstream of the plant and impacts from the project. Consequently, the chute was redesigned as a backwater all within existing Corps property.

Currently, the existing backwater is providing less than optimal habitat. In order to create more suitable habitat that would qualify as SWH under the Biological Opinion, the backwater will be converted to a flow through chute. The current concept plan calls for the chute to be constructed through the general alignment of the existing backwater with a new chute inlet located on Corps' property at the upstream end. A dredged pilot channel constructed to an intermediate width would extend through the entire length of the chute. The intent is that the chute would expand to its optimum width through natural erosion processes. In order for this to occur, an inlet control structure would be constructed to the estimated final width of the channel that would allow sufficient energy for scour of the pilot channel to the optimum width. The inlet structure will require modification in the future once the optimum width is obtained to reduce energy during normal flow regimes. Various types of habitat structures (e.g., (rock/woody debris piles) will be periodically placed within the chute.

The current acquisition strategy calls for this to be awarded as a task order to the existing Multiple Award Task Order Contract (MATOC) for Construction, Missouri River Recovery Program. The contractors in this pool all have significant experience with this type of construction.

2.2 Project Risk and Complexity. Overall this is not a complex project from a hydraulic design and construction perspective. There are no known design/construction related challenges with respect to the chute itself and multiple similar projects have been previously designed and constructed by the Omaha District.

SWH projects, such as this chute project, are to intended to function without adversely impacting other authorized purposes of the MR BSNP (i.e., bank stabilization and navigation) or the function of the adjacent flood control levee. However, there are risks associated with these types of projects with impacts or perceived impacts to other projects or authorized purposes in extreme floods. Following the historic Missouri River flood of 2011, there were erosion scours adjacent to other chutes and in other areas of the floodplain. Local landowners and levee boards and as navigation interests contend that the chutes may have an adverse impact on levees and the navigation channel (e.g. reduced Missouri River main channel flows resulting in shoaling and narrowing of the authorized channel).

From a regulatory perspective, the Water Commission will not issue a permit for dredging and disposal in the river. While the project is located in Nebraska, current COE Regulatory policy is that water quality project approval is received from both states adjacent to the Missouri River. While this issue will not impact project design, it may delay project construction.

The PDT has and will continue to coordinate with the industrial plant given the proximity of the location of the inlet to the plant discharges. However, there are no anticipated issues with industrial plant that would impact the implementation of the project.

This will be the first chute designed and constructed adjacent to a levee system since the 2011 flood. Given the lessons learned from the 2011 Missouri River Flood and stakeholder interest, any new chutes warrant a thorough review of the project's design. Given the high interest in chute projects and project risk, experienced staff is required for design and review.

2.3 Project Schedule Risk. The project is currently scheduled for design during FY13 with construction programmed for FY14. However, ideally the project design could be completed and the project ready for construction award by the end of FY13 in the event 4th quarter funds are available. There is limited risk that the design cannot be completed by the end of FY13 with all associated reviews. Funding will be available at the start of the FY and it is believed that any technical concerns that may develop can be satisfactory addressed. There is a high risk that construction of the project will not start until after FY14 due to Missouri River Water Commission objections to dredge disposal in the river. Resolution of this issue has been delayed multiple times and is currently being worked by Missouri River Recovery Program senior leadership. This issue is not the responsibility of Omaha District Engineering Division Funding for construction is anticipated to be available in FY14.

3. DESIGN QUALITY CONTROL REVIEW REQUIREMENTS

3.1 General. Due to the controversial nature of this projects and potential risks posed to the adjacent federal levee system, a robust review process will be implemented that will occur at several stages of design and incorporate several levels of reviews. In addition, an external agency review will also be conducted concurrent with design reviews.

3.2 Reviews. Design quality control reviews will be performed as indicated below. The reviews schedule will be developed and incorporated into the projects overall schedule provide in the PMP.

3.2.1 Concept Phase.

Reviews:

- Peer Review
- PDT Interdisciplinary Review

Products available for Review:

- Alternatives Assessment. Includes concept plans, rough quantities & concept level discussion, typically 1 page plans.

Documentation:

- Sign-off sheets
- Comments (written, marked up drawings, etc.)

3.2.2 Project Information Report Phase.

Reviews:

- Peer Review
- PDT Interdisciplinary Review
- Supervisory Interdisciplinary Review
- Agency Technical Review will be conducted concurrent with the Supervisory Interdisciplinary Review

Products available for Review:

- Project Information Report. Includes Hydrologic Engineering Branch and GES Branch design analysis of proposed alternative, 60% level drawings, current working estimate, list of required specification, operations and maintenance key considerations.

Documentation:

- Sign-off sheets
- Comments (Dr CHECKS will be utilized for all significant comments for interdisciplinary reviews, other written comments, marked up drawings, etc.)

3.2.3 90% Design Phase.

Reviews:

- Peer Review
- PDT Interdisciplinary Review
- Supervisory Interdisciplinary Review/BCOE Review (Conducted concurrently)
- Agency Technical Review will be conducted concurrent with the Supervisory Interdisciplinary Review

Products available for Review:

- Project Information Report. Includes Hydrologic Engineering Branch and GES Branch design analysis of proposed alternative, 90% level drawings and specifications, current working estimate, draft operations and maintenance manual.

Documentation:

- Sign-off sheets
- Comments (Dr CHECKS will be utilized for all significant comments for interdisciplinary reviews, other written comments, marked up drawings, etc.)

3.2.4 Plan-in-Hand Review. A Plan-in-Hand review is not required for this project. Site surveys are current and the site is frequently visited by design staff so no unexpected conditions are anticipated.

3.2.5 Lessons Learned Review. A formal lessons learned review is not planned for this project because similar projects utilizing the same construction techniques and contract drawings and

specifications have been executed without significant issue. Lessons learned from these past projects have been incorporated into current contract documents.

3.3 Quality Control Documentation Retention/Stewardship. The Technical Lead is responsible for maintaining all review certification sheets, written comments, marked up documents, and/or any other quality control related documents until the final product has been approved. All review certification sheets and formal written comments (e.g., DrCHECKS) will be retained in the permanent project file maintained by the Technical Lead).

3.4 Value Engineering Study. A Value Engineering Study is not required for this project. The Missouri River Recovery program has conducted a programmatic VE study, Missouri River Recovery Program – Mitigtation Project Including Shallow Water Habitat (March 2009) that is applicable to this site.

3.5 Final Engineering Division Product Approval. The Chief of Engineering Division will approve the final products, after all review comments have been addressed, through the signing of the Product Completion Certification Form, BCOE Certification, and drawings. Requests for final approval will be accompanied by the product, DQCP, review certifications and other appropriate documents (See ED Chief Approval Checklist)

3.6 Forms. The attached forms will be completed during the Engineering Division Quality Control process.

- DQCP Review and Approval Certification
- Peer Review/Design Check Certification
- PDT Interdisciplinary Review Certification
- Supervisory Review Interdisciplinary Review Certification
- BCOE Review Certification
- Product Completion Certification
- BCOE Certification
- Drawing Signature Block
- Chief of Engineering Division In-House Developed Products Approval Checklist

4. PDT INFORMATION

4.1 Project Manager: Kelly Robinson, CENWO-PM-C

4.2 Technical Lead and Lead Technical Organization:

- James Wilson, Sediment and Channel Stabilization Section, Hydrologic Engineering Branch

4.3 Engineering Division Project Delivery Team: Provided below is the list of planned Engineering Division staffing on the PDT. In the event changes in the PDT are necessary, individuals of similar or greater qualifications and experience will replace current PDT members.

ENGINEERING DIVISION PDT		
Hydrologic Engineering Branch		
	James Wilson (TL)	CENWO-ED-HF
	John Moore	CENWO-ED-HF
	Robert Thomas	CENWO-ED-HB
Geotechnical Engineering & Science Branch		
	Michael Jackson	CENWO-ED-GA
Cost Estimating and General Engineering Branch		
	David White	CENWO-ED-C
	Alex Garcia	CENWO-ED-C

4.4 Engineering Division Design Review Team(s): Provided below is the list of planned Engineering Division design team reviewers. In the event changes in the review team are necessary, individuals of similar or greater qualifications and experience will replace current PDT members.

ENGINEERING DIVISION DESIGN REVIEW TEAMS		
Peer Reviews		
	CENWO-ED-HF	Bill Smith
	CENWO-ED-HF	Joe Anderson
	CENWO-ED-HB	Mike Jones
	CENWO-ED-GA	Steve Taylor
PDT Interdisciplinary Review		
	CENWO-ED-HF	Jim Jones
	CENWO-ED-HB	Bill Schmidt
	CENWO-ED-GA	Richard Johnson
Supervisory Interdisciplinary Review		
	CENWO-ED-HF	Charles Brown
	CENWO-ED-HB	Paul Davis
	CENWO-ED-GA	Mark Miller
BCOE Review		
	The BCOE will be combined with Supervisory Interdisciplinary Review	

Attachment 3

DQCP REVIEW AND APPROVAL CERTIFICATION

The undersigned certify that the Design Quality Control Plan meets the general requirements of Engineering Division's Quality Control Process for In-House Products and is approved.

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Technical Discipline	PDT Member Supervisor	Signature	Date
Lead Technical Organization Branch Chief Approval			
Name	Signature	Branch	Date

Attachment 4

PEER REVIEW/DESIGN CHECK CERTIFICATION

The undersigned certify that they have conducted a peer review/design check of the noted product(s) to assess the application of methods, validity of assumptions, adequacy of basic data, correctness of calculations, completeness of documentation, and compliance with guidance and standards. Comments as appropriate were provided to the designer.

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Discipline	Reviewer	Signature	Date

Attachment 5

PDT INTERDISCIPLINARY REVIEW CERTIFICATION

The undersigned certify that they have conducted a PDT interdisciplinary review to ensure that the all elements are properly integrated and compatible and that the product is in general compliance with established policies, criteria, and engineering practice. Comments as appropriate were provided to the designers.

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Discipline	PDT Member	Signature	Date

Attachment 6

PLAN-IN-HAND REVIEW CERTIFICATION

The undersigned certify that they have conducted a plan-in-hand review to compare the completed plans with the current site characteristics. Comments as appropriate were provided to the designers.

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Discipline	PDT Member	Signature	Date

Attachment 7

SUPERVISORY INTERDISCIPLINARY REVIEW CERTIFICATION

The undersigned certify that they have conducted a supervisory interdisciplinary review to ensure that the all elements are properly integrated and compatible and that the product is in general compliance with established policies, criteria, and engineering practice. Comments as appropriate were provided to the designers.

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Discipline	Reviewer	Signature	Date

Attachment 8

BCOE REVIEW CERTIFICATION

The undersigned certify that they have conducted a review to assess biddability, constructibility, operability, and environmental aspects of the project. Comments as appropriate were provided to the designers.

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Discipline	Reviewer	Signature	Date

Attachment 9

PRODUCT COMPLETION CERTIFICATION

The undersigned certify that this product is in general compliance with established policies, criteria, and engineering practice. Reviews have been conducted and all significant conflicts and comments have been resolved. This product meets the requirements for the intended purpose of the project.

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Discipline	PDT Member	Signature	Date

Engineering Division Branch Chiefs Approvals			
Name	Signature	Branch	Date

Chief of Engineering Division Approval		
Name	Signature	Date

Attachment 10

Department of the Army
Corps of Engineers, Omaha District
1616 Capitol Avenue
Omaha, Nebraska 68102

BCOE Certification

1. Reference. ER 415-1-11, Biddability, Constructibility, Operability, and Environmental Review and OM 415-1-5.

2. Project Name: _____
Project #/Solicitation #: _____
Installation: _____

3. All final design and BCOE Reviews have been completed. Comments have been incorporated into the bidding documents as considered appropriate. There are no known modifications.

_____ _____
Project Manager Date

3. The undersigned certify that all appropriate biddability, constructibility, operability, and environmental comments received and reviewed by these offices have been incorporated into subject bid package, as required by the referenced regulations. Feedback has been provided to reviewers for all comments.

_____ _____
Chief, Operations Division (Civil O&M Only) Date

_____ _____
Chief, Construction Division Date

_____ _____
Chief, Engineering Division Date

Attachment 11

CENWO-PM-?? DD MMM YYYY

MEMORANDUM FOR CT-??

SUBJECT: Project ??XX??, Waiver of BCOE Certifications Required for Advertising

PROJECT: ?

1. Reference. ER 415-1-11, Biddability, Constructibility, Operability, and Environmental Review and OM 415-1-5.

2. This project does not meet Certification Requirements for Advertisement (Waiver Required).

3. Due to enclosed constraints, an exception is authorized to advertise concurrent with completion of the biddability, constructibility, operability and environmental review. Bids will not be opened until certifications are completed and changes are incorporated in the bid package.

Recommend:

_____ _____
Project Manager Date

_____ _____
Chief, Operations Division (Civil O&M Only) Date

_____ _____
Chief, Construction Division Date

_____ _____
Chief, Engineering Division Date

Approved:

_____ _____
District Engineer Date

Attachment 12

DRAWING COVER SHEET SIGNATURE BLOCK

EXAMPLE -- MODIFY AS NEEDED FOR SPECIFIC PROJECT

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF DRAWINGS IN THIS SET.

CHIEF, GEOTECHNICAL ENGINEERING AND SCIENCES BRANCH **DATE**

CHIEF, DESIGN BRANCH **DATE**

CHIEF, HYDROLOGIC ENGINEERING BRANCH **DATE**

CHIEF, ENGINEERING DIVISION, P.E. **DATE**

THIS PROJECT WAS DESIGNED BY THE OMAHA DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS THAT APPEAR ON THESE PROJECT DOCUMENTS ARE WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

Once signed, the signature block will be inserted onto the cover sheet of the drawing set.

Attachment 13

CHIEF OF ENGINEERING DIVISION IN-HOUSE DEVELOPED PRODUCTS APPROVAL CHECKLIST

Project:	
Product(s):	
Product Phase:	
Project Manager:	
Lead Technical Organization:	
Lead Engineer/Architect:	

Engineering products requiring Chief of Engineering Division signature on drawings, BCOE certification, or non-construction product certification of completion should be routed for signature with the following items as applicable.

- ☐ Project Management Plan
- ☐ Design Quality Control Plan (DQCP)
- ☐ Final product(s) (e.g., Design Documentation Report, Plans, Specifications, O&M Manual)
- ☐ Current Working Estimate (CWE)
- ☐ Signed Review Certification Form(s) as required in DQCP
- ☐ Review Comments (DrChecks and other comment management processes)
  - Summary page indicating all comments closed.
  - Individual review comments and responses.
- ☐ Product Completion Certification Form for Chief of Engineering Division's Signature
- ☐ BCOE Certification Form Ready for Chief of Engineering Division's Signature (if applicable)

Attachment 14

Risk Register

Refer to the following pages.

Project	Non-structural Flood Mitigation Assessment for ???? Project
Product	Feasibility Study
Product Phase	Feasibility Study Report
Project Manager	Joe Smith
Lead Technical Organization	Flood Plain and Flood Risk Management
Lead Engineer/Architect	Joe Anderson

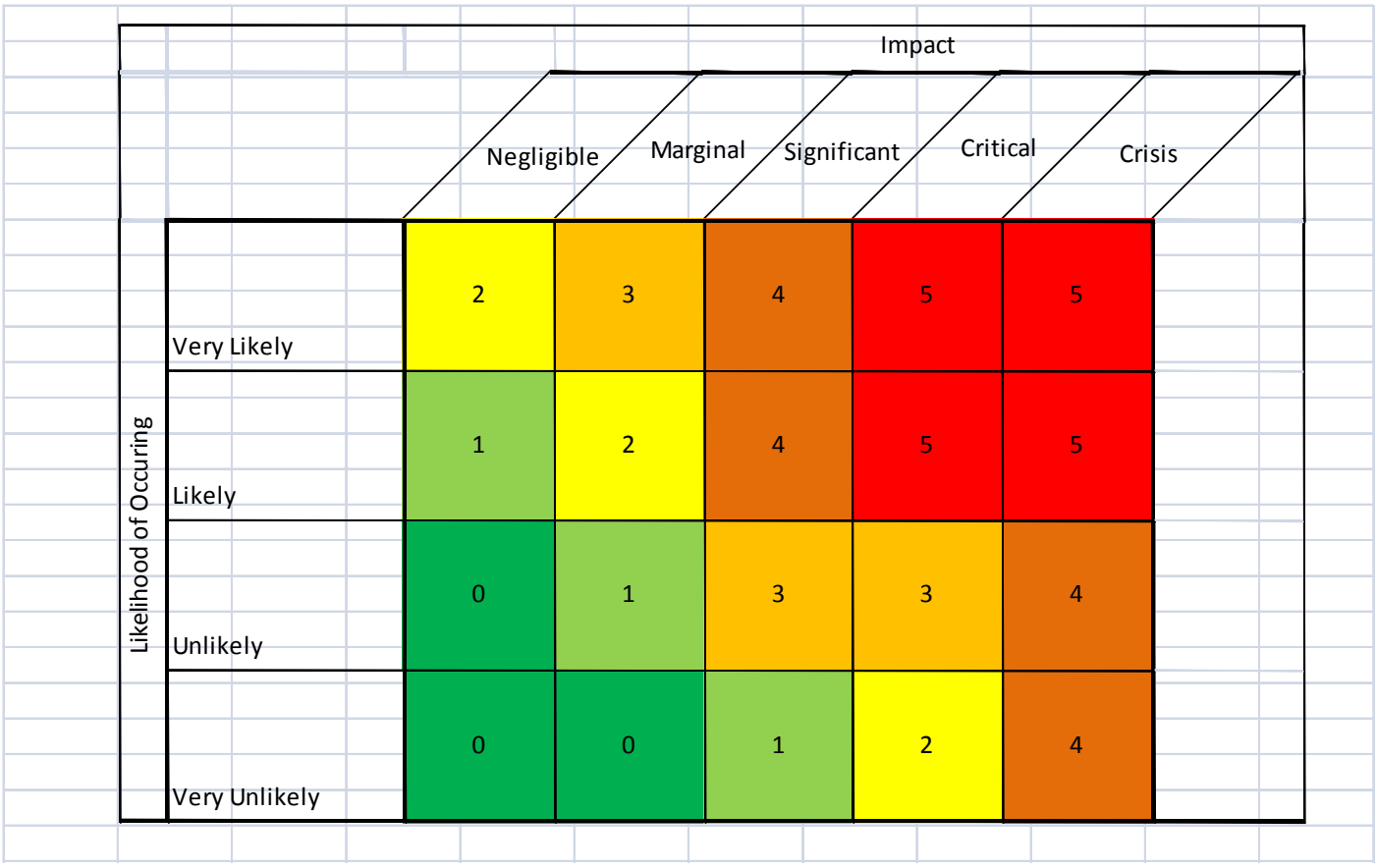
Questions to consider	What is the problem or issue?	What are the sources and consequences of the problem?	Range of potential results.	Severity, frequency, duration of impact on study success or project outcomes.		PDT Discussions & Conclusions (including logic & experience with prior studies)
Hydrology & Hydraulics						
Risk #	**Risk Description**	**Consequences and source**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**
1	Limited hydraulic modeling	The study will utilize existing models that do not fully cover study area. Evaluation will be done by interpolating between models. This will cause greater uncertainty in Stage-Frequency analysis and economic analysis	Very Likely	Marginal	3	Estimates of mean damages are not greatly affected. Median damages are more varied, and range about median is larger. Additional uncertainty in stage-flow in a larger range of damages for reach flood event. This will be accounted for in HEC-FDA analysis when evaluation alternatives.
Environmental						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**
1	An EIS may be required rather than the assumed EA	Discovery of significant impacts, which would trigger an EIS.	Unlikely	Marginal	1	Have environmental information about the study area, PDT doesn't anticipate any significant effects to significant resources that would trigger an EIS. Costs would increase if elevated to an EIS.
2	Site-specific environmental investigations during PED may render individual measures unavailable at specific sites when they were assumed to be available.	Inability to conduct site-specific environmental investigations (wetlands, T&E species, etc.) at all potential features due to feasibility time constraints.	Likely	Negligible	1	It seems likely that there will be environmental conditions for at least a few individual sites that would require changes in recommended measures, or even the elimination of all feasible measures at a site. Site visits during PED will bring to light any impacts, PDT would evaluate environmental considerations as needed.
Economics						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**

1	Structure inventory	Low level of detail in some parts of study area. Structure types estimated with aerial imagery. Foundation heights will be estimated using averages by type. This will create more uncertainty in damage estimates.	Very Likely	Marginal	3	High resolution LiDAR is available for entire study area. This will improve the accuracy of first floor elevations. A lot of detail about structure values is available for the region from the xxxx Study. Estimates are not greatly affected. Median damages are more varied, and range about median is larger. First floor elevations are largest determinant in structure damages.
2	Non-structural Measures	Since data for many structures will come from aerial imagery, it is possible to mis-identify structures. This would result in structures being recommended in non-structural alternatives with inaccurate information	Very Likely	Significant	4	Structures that were mistakenly identified as feasible during the feasibility study can be removed from consideration in PED. Structures that were not considered feasible in feasibility will not be revisited in PED
3	Non-structural Measures (2)	Structures that are inaccurately identified as feasible will not be implemented in construction phase. Many stakeholders could potentially be contacted and told they are candidates for non-structural measures before the mistake is corrected. This could cause general discontentment among stakeholders	Very Likely	Critical	5	Economic guidance requires using depreciated replacement values.
4	Authorized project cost	A large non-structural plan would need to be implemented on a site by site basis. A complete and functioning flood risk management feature may be fully implemented in some sites before others. If the WRDA section 902 maximum project cost were to be exceeded before the full alternative was implemented, some stakeholders would have benefited and others would not. At that point, the USACE and local sponsors would likely halt the project, rather than seek new authorization. This would raise questions about favoritism and fairness in the implementation of the project	Unlikely	Critical	3	Normally, HEC-FDA would handle this, but if we do not use that software, we may have to measure risk in an external software package
Recreation						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**
1	No recreation features are proposed as part of the project	Since recreation features will not be evaluated, it is possible that recreation opportunities will be missed.	Very Unlikely	Negligible	0	No recreation features should have no impact on the overall project.
Geotechnical						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**

1	Limited geotechnical borings done for the project area	Some measures may not be technically feasible.	Unlikely	Marginal	1	Soil formations are similar across the basin . PDT has geotechnical information for the area and soils in the area are similar, unlikely to have different findings, additional borings could be done during the PED phase.
Cost Estimating						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**
1	Estimates for Non-Structural measures	Estimates for non-structural measures will not be done on a site by site basis. Instead, general unit costs will be applied to measures based on type of structure, and scale of measure. This will lead to more uncertainty in alternative cost estimates.	Very Likely	Marginal	3	
2	Estimates for Non-Structural Alternatives	Since limited data is available for many structures, some may be eliminated after feasibility and before implementation. This would tend to make the cost estimate for alternatives inaccurate.	Very Likely	Significant	4	Close coordination with the NFPC could buy down risk by using costs from previous work.
HTRW						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**
1	Phase 1 HTRW surveys	HTRW potential near farmsteads.	Unlikely	Marginal	1	Based on information from parts of the basin and information from other projects in the basin, significant HTRW impacts are unlikely and can be addressed once sites for non-structural are identified.
2	Site-specific HTRW surveys are not possible for all construction sites during feasibility	Undiscovered HTRW sites may be encountered during PED or construction.	Unlikely	Marginal	1	If contaminants are discovered during construction, work would cease and mitigation of the contaminants would be needed. This could delay project completion.
Civil						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Uncertainty**	**Likelihood**	**Risk Rating (0-5)**	**Notes**
1	Reliance on existing structures strengths/conditions to withstand selected measures	Assume all structures would be eligible to be mitigated (ex: raise, move) but some may not be able to upon further inspection, would then need to re-evaluation the selected alternative for that structure.	Likely	Marginal	2	May need to re-evaluate the selected alternative which will increase costs and take additional time.
Real Estate						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**

Risk #	Risk Description	Risk Cause/Event	Likelihood of Occurring	Impact	Risk Rating (0-5)	Notes
1	Utility Relocations	Delay in Project Schedule	Likely	Marginal	2	Utilities found within any of the ROW that will require relocation.
2	Willing landowners are needed	Project is only successful if there are willing participants	Likely	Critical	5	Landowner participation is the critical key to success of mitigation. Lack of participation will lead to an unsuccessful project.
3	Extensive RE Acquisitions	Delay in Acq Sch/Proj Sch	Unlikely	Critical	3	No acquisition should be needed, but a recommended alternative may entail working with hundreds or thousands of landowners.
Plan Form						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**
1	Merging guidance being provided with the new paradigm process	How study progresses, doing work over increases costs and shifts the schedule.	Very Likely	Significant	5	If we know what the vision is, we can look for ways to produce those results or document why that vision can not be achieved and offer an alternative. We can involve the vertical teams early and often involved when decisions are being made. We have also established lines of communication between the planners on other pilot studies to facilitate the prompt sharing of lessons learned.
2	ATR for pilot studies differs from "regular" ATR	ATR team has not had the same indoctrination process into the new paradigm and will face the same problems as the PDT with regard to not knowing what is expected until they make a submittal. Will increase costs and shift the schedule.	Likely	Significant	4	May be able to buy down the risk if we identify the ATR members quickly and bring them into the ongoing planning process along with the active PDT members.
3	Waivers needed for planning guidance	Since this is going to be "fast planning", some areas may need waivers from current planning guidance. Will increase costs and shift schedule.	Likely	Significant	4	Try to identify any potential waivers early and involve the vertical teams in decisions.
5	Feasibility schedule	Study is set to be complete, with Chief's Report, by December 2012. Slip schedule.	Likely	Significant	4	Schedule is critical, need buy in from all levels early on the planning process and decreased level of detail.
Cultural						
Questions to consider	**What is the problem or issue?**	**What are the sources and consequences of the problem?**	**Range of potential results.**	**Severity, frequency, duration of impact on study success or project outcomes.**		**PDT Discussions & Conclusions (including logic & experience with prior studies)**
Risk #	**Risk Description**	**Risk Cause/Event**	**Likelihood of Occurring**	**Impact**	**Risk Rating (0-5)**	**Notes**
1	Site-specific cultural investigations during PED may render individual measures unavailable at specific sites when they were assumed to be available.	Inability to conduct site-specific cultural investigations at all potential features due to feasibility time constraints.	Likely	Marginal	2	Based on cultural work completed in the area, there is potential for cultural resources to be found, but not many would likely be eligible for listing on the National Register or would require substantial mitigation. Alternatives may actually protect cultural resources. Anything found during PED would require modification of site-specific measures and/or additional mitigation expense, and possibly render specific sites infeasible.
Other						

RISK MATRIX


Impact
Negligible
Marginal
Significant
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Crisis
Likelihood of Occuring
Very Likely
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Unlikely
Very Unlikely
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Appendix H

POL-MCX Communication Summary

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Frequency	Report / Deliverable	Purpose	Prepared By	Approved By	Distroed By	Distro Includes	Target Audience	Delivery Date	Format
Annually	POL-MCX Annual Report	Summarize annual execution; Support to USACE Districts and program	MCX Prgm Manager	Director POL-MCX	MCX Prgm Manager	Fuel section PMs, CD-SP, CT-Mil, ED-Design	HQUSACE	1st QTR each FY	Written
Annually	POL-MCX Annual Projections	Projections for Next FY	MCX Prgm Manager	Fuels Section Chief	MCX Prgm Manager		POL-MCX Stakeholders	Jun/Jul of each FY	Written
Qtrly	CA Briefing	Quarterly summary / update of USACE execution of DLA-Energy program	Fuels Prgm Manager	Fuels Section Chief	Fuels Prgm Manager	Fuels Section PMs, DLA POCs.	DLA-Energy Command, District LDRs, USACE HQ	Quarterly EA Briefing	PowerPoint, Distro by email, Briefed at QTRLY CA Brief
Qtrly	POL-MCX newsletter	Status of POL-TCX program	MCX Prgm Manager	PM-S Chief	MCX Prgm Manager		All fuels stakeholders (HQUSACE, MSCs, Districts/Centers, EA's, contractors)	2nd week of every quarter	Written, distro by email
Qtrly	DLA MILCON Line Item Review	Status of USACE execution of DLA MILCON program	MILCON Prgm Manager	Fuels Section Chief	MILCON Prgm Manager	HQ Pulls from P2; Each division briefs updated status	DLA, HQUSACE, MSCs	3rd Thursday of every quarter	Teleconference; MCX Prgm Mgr; MILCON PgM
Qtrly	QTRLY Advisory Group Meeting	Ensure POL-MCX activities are synchronized within Omaha	MCX Prgm Manager	Fuels Section Chief	MCX Prgm Manager	Advisory Group Members	Advisory Group	3rd Thursday of QTR last month	Meeting
Monthly	PRB	Monthly summary / update of the Omaha POL-MCX Program	Fuels Section Chief	PM-S Chief	PM-S Chief	Fuel section PMs, CD-SP, CT-Mil, ED-Design	Omaha District Leadership	2nd Thursday of each month	PowerPoint, Distro by email, Briefed at Monthly PRB
Monthly	MILCON project reports	Status of RD, Design and In-construction MILCON Projects	MILCON Prgm Manager	Fuels Section Chief	MILCON Prgm Manager	Fuel section PMs, CD-SP, CT-Mil, ED-Design	DLA MILCON PM	Monthly	Excell document, Distro by email
Monthly	CMP status reports	Tank Out-of-Service and Inspection schedules	CMP Manager	Fuels Program Manager	CMP Manager	DLA Tank Managers, CD-SP, CT-Mil, ED-Design	DLA-Energy	Monthly	Excell document, Distro by email
Bi-Monthly	Construction Status Report	Status of Projects in Construction (cost/quality/schedule)	CD-SP	CD-SP	CD-SP	PM, CD-SP, CT-Mil, ED-Design; Advisory Group	Omaha POL-MCX stakeholders	1st and 15th of each month	Pull from RMS
Bi-Monthly	DLA-E Construction Status Report	Status of Projects in Construction	Fuels Prgm Manager	Fuels Section Chief	Fuels Prgm Manager	PM, CD-SP, DLA-PMs, DLA-Construction	DLA-Energy	5th and 20th of each Month	Excell Document, Updated from Construction Status Report; Distro by email
Bi-Monthly	DLA-E, Army Petroleum Center Update	Status of project execution and approval	PPS Program Manager	Fuels Program Manager	PPS Program Manager	DLA-PMs, APC PMs, CD-SP	DLA, APC	Every other Thursday	Teleconference
Bi-Monthly	DLA-E, Air Force Petroleum Office Update	Status of project execution and approval	Fuels Prgm Manager	Fuels Section Chief	Fuels Prgm Manager	DLA-PMs, AFPET PMs, CD-SP	DLA, AFPET	Every other Wednesday	Teleconference
Bi-Monthly	DLA-E, NAVSUP Office	Status of project execution and approval	PPS Program Manager	Fuels Program Manager	PPS Program Manager	DLA-PMs, NAVSUP, CD-SP	DLA, NAVSUP	Every other Thursday	Teleconference
Bi-Monthly	Fuels PM/CD Coordination Meeting	Status of projects in constrution, MODs, execution and approval	Prgm Leads	Fuels Section Chief		No prior distro; Notes distroed by Fuels Section Chief	PM POL-MCX, CD-SP Staff	Every other week	Verbal
Weekly	POL-MCX Design PDT	Status of proeject design	ED-Design Branch Chief	ED-Design Branch Chief	ED-Design Branch Chief	PM, CD-SP, CT-Mil, ED-Design;	Fuels PDT	Each Tuesday	Meeting
Weekly	Weekly Significant Activities Report	Current and upcoming activities of significance	Fuels Section Chief	Fuels Section Chief			Omaha District Front Office	Each Wednesday	Written
Weekly	Fuels PM Team Meetings	Significant activities and programmatic tools.	Prgm Leads	Fuels Section Chief		No prior distro; Notes distroed by Fuels Section Chief	PM POL-MCX Coordination Mtg	Every Monday at 1000	Verbal
Weekly	Fuels PM/CT Meeting	Review CAM Updates process and targets	Prgm Leads	Fuels Section Chief		No prior distro; Notes distroed by Fuels Section Chief	PM POL-MCX, CT Staff	Every Monday at 0900	Verbal
Weekly	Fuels PM/PA Meeting	Review Funding Documents / Upcoming PR&Cs and L/C	Prgm Leads	Fuels Section Chief		No prior distro; Notes distroed by Fuels Section Chief	PM POL-MCX, PA Staff	Every Friday at 1000	Verbal

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Appendix I

Programmatic VE study on the DOD Fuels Facilities Program and Standards

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DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
1616 CAPITOL AVENUE
OMAHA, NE 68102-4901

CENWO-ED-C

12 February 2014

MEMORANDUM FOR Chief Value Officer, HQUSACE

SUBJECT: Post-Study Evaluation of the Programmatic VE Study on the DOD Fuels Facilities Program and Standards

1. References:

a. Value Engineering Program Requirements for Fuel Facilities Projects, Final Value Engineering Study Report, USACE Omaha District, prepared by Value Management Strategies, May 2013

b. DoD Fuels Facilities Program and Standards, Final Value Engineering Study Report, USACE Omaha District, prepared by Value Management Strategies, 13 September 2013

2. Background: This memorandum summarizes the value management process and the disposition of value engineering recommendations (Attachment A) for the Defense Logistics Agency (DLA) Fuels Facilities standard designs, applicable codes, and program execution. In April 2013 a Value Engineering (VE) study (ref. 1.a), sponsored by the Defense Logistics Agency (DLA), hosted by the U.S. Army Corps of Engineers (USACE), Omaha District, and facilitated by Value Management Strategies (VMS), Inc., was conducted to develop VE Program Requirements for Fuel Facilities Projects. This VE study resulted in three major requirements for Fuels Facilities (FF) program.

- Develop a FF screening process/tool to determine if VE opportunity exists on non-standard features for a specific fuels project. The screening process/tool was developed by VMS and approved by USACE Headquarters on 21 August 2013 through an information (white) paper.
- Conduct a programmatic (Level 5) VE study of the Fuels Design Standards features and update them every 3-5 years. A final programmatic (Level 5) VE study was completed in September 2013 (ref. 1.b) on the following fuels design standards:
  - DOD Pressurized Hydrant Fueling System Type III
  - DOD Cut'N'Cover Standards Storage Tank/Pumphouse and Filter Building
  - DOD Standard Pressurized Hydrant direct Fueling System
  - DOD Aboveground Vertical Steel Fuel Tanks With Fixed Roofs
  - DOD Specifications for Type III, IV, V and Cut-N-Cover Standards
  - UFC_3_460_01 (Design: Petroleum Fuel Facilities)
  - UFC_3_460_03 (Operation and Maintenance: Maintenance of Petroleum Systems)
- Identify a DOD non-voting VE coordinating member to serve on the Fuels Facility Engineering Panel (FFEP). This identification of a non-voting VE coordinating member is currently in the process by the FFEP.

SUBJECT: Post Study Evaluation of the Programmatic VE Study on the DOD Fuels Facilities Program and Standards

3. Value Management Process for Fuels Facilities Standard Designs and Codes:
   - Pre-study information was distributed 6 August 2013 to the VE Team members.
   - The programmatic (Level 5) VE study was conducted 19-23 August 2013, with the final report (ref. 1.b) provided by VMS on 13 September 2013. Study results included:
     - The VE team identified eighty-six (86) creative ideas.
     - Fifty-four (54) of these ideas were considered viable alternatives.
     - Twenty-six (26) of the VE alternatives are related to revisions to the four design standards (DS) documents and the corresponding specifications.
     - Fifteen (15) of the VE alternatives are related to revising the two UFC criteria for fuels facilities.
     - Thirteen (13) VE alternatives are related to possible DoD Fuels program execution (FPE) considerations.
   - The post-study documentation was completed 24 January 2014.
     - Final acceptance, rejection or check & resolve of alternatives were addressed and finalized during the DoD FFEP meeting (DLA Headquarters Building) in Fort Belvoir, VA on 10 January 2014. Representatives from DLA, USACE, NAVFAC, and AFCEC were present. The meeting minutes and sign-in sheet are included as Attachment B. The VE recommendations were addressed at the end of the day.
     - Review comments, evaluation, backcheck, and closure were documented in the USACE DrChecks review comment system (Attachment C).
       - Accepted/concur (29) which will be or in the process of being incorporated.
       - Rejected/non-concur (14) which are supported by sound narrative reasoning from the team.
       - To Be Determined/Check & Resolve (11) which are alternatives that the decision team is open to but need more time for review and study. These decisions are supported by sound narrative reasoning by the review team.

4. Disposition of Recommendations: Disposition is summarized in Attachment A.
   - A total of 29 recommendations were accepted and/or concurred with by the FFEP members. These recommendations on standard designs, codes, and program execution will be implemented on individual projects with a Bridging VE document prepared by the District VE Officer. This bridging document will identify which VE recommendations are applicable for that specific project and document any resulting cost avoidance. This level of effort will be identified in the Value Management Plan (VMP) for each project.
   - An additional 11 recommendations are in the 'To Be Determined / Check & Resolve' category; the FFEP is open to these alternatives, but needs more time for review and study before determining final disposition. As disposition is determined, accepted recommendations will be included for consideration in the Bridging VE document for individual projects.
   - A total of 14 alternatives were classified as 'Rejected / Non-concur', and were dropped based on sound narrative reasoning by the review team.
   - Potential impacts of $1M or more can only be determined on the circumstances of each individual fuels project. Rejection of any VE recommendations at this level for a specific project must be addressed by the geographic District following guidance in ER 11-1-321, with a copy furnished to the Fuel Facilities Center of Expertise, NWD, and the Chief Value Officer, USACE.

SUBJECT: Post Study Evaluation of the Programmatic VE Study on the DOD Fuels Facilities Program and Standards

5. Implementation:
   - Districts will utilize the VE Screening /Strategy Selection/Value Management Plan (VMP) tool to develop the VMP, as required. Projects will utilize the "Bridging" level to document those approved aspects of the Programmatic Standard study (as applicable) that are incorporated into the project. Additionally, the DLA Fuels Screening tool will be used to assist PMs/VEOs/PDTs in determining the level of effort required on the non-standard portions of the project. Both the Bridge level results (from the standard designs programmatic study) and the screening tool results will be documented within the VMP for budgeting, scheduling, and resourcing at the Project Initiation/Planning phase of the PMP. For non-standard DLA Fuels projects, the USACE VE Screening /Strategy Selection/Value Management Plan (VMP) tool will be used to determine the level of effort required, which will be documented within the VMP.
   - Additional information is included in the Information Paper, "Value Engineering (VE) for Defense Logistics Agency (DLA) Fuel Facilities" (Attachment D).

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Richard Stricker, AVS
Value Engineering Officer
USACE Omaha District

Encl

Concur Non-Concur

Stephen Bredthauer, AVS
Value Engineering Program Manager
USACE Northwestern Division

Concur Non-Concur

Jeffery T Hooghouse, AIA, DBIA, CVS
Chief Value Officer (CVO)
US Army Corps of Engineers, HQ

2/12/14

ATTACHMENT A

Disposition of Value Engineering Recommendations

Programmatic VE Study – DLA Fuel Facilities Standard Designs

VALUE ENGINEERING RECOMMENDATIONS - DEPARTMENT OF DEFENSE FUEL FACILITIES PROGRAM, STANDARD DESIGNS, AND UNIFIED FACILITIES CODES		
TITLE	**RESPONSE**	**NARRATIVE**
ACCEPTED / APPROVED RECOMMENDATIONS		
DS-2 Revise standards to require all pipelines to be piggable	Concur	The benefits of piggable pipelines to assess pipeline integrity is desirable in this environmental concerned era. Pipelines should be piggable in most cases (Hydrant loops and long transfer lines on pipe sizes greater than or equal to 8"), where project costs are not increased excessively. A cost increase of $50K per typical hydrant system. Note: NATO will not pay for piggable systems.
DS-3 Eliminate the requirement for 3-d elbows	Concur	Smart pigs are now available which can transverse 8" and larger long radius elbows (1.5D), which are the standard elbow required for DOD fuel systems (less expensive than 3D). Elbows with 3D radius are required on pipe diameters of less than 8".
DS-8 Allow the use of solar water heating for emergency shower and eyewash	Concur	Solar as supplement to the heating system is already permitted, but changing over to total solar is not. There are times when clouds remain in place for days, so solar heating is not reliable.
DS 9 Allow the use of solar power to supply power to pump house for non-systems load	Concur	Solar as supplement to the power requirements is already permitted, but to remove some of the non-essential items off the grid and place them solely one solar is not.
DS-10 Allow weld-o-lets for small, aboveground pipe branches	Concur	The use of 2" and smaller aboveground weld-o-lets (which can not be radiographed) near fittings which can not be radiographed is acceptable. Requiring radiographed fittings (where not required) adds cost to projects.
DS-11 Allow socket weld type flanges for small piping	Concur	The use of 2" and smaller aboveground socket weld type flanges (which can not be radiographed) near fittings which can not be radiographed is acceptable. Requiring radiographed fittings (where not required) adds cost to projects. Socket weld type flanges will not to be permitted in pits.
DS-15 Delete the requirement for a 42" flat screen panel from control system	Concur	The need for the 42" screen has been replaced by the computer screen. Field personnel have indicated the big screen is not needed, but they enjoy watching sports on it
DS-18 Require the installation of blast protection for generators in cut and cover design standard	Concur	If there is a need for installing a fuel tank underground with the hardened structure on top, then the generator should be treated like the rest of the system. Currently the generator is mostly protected inside the hardened structure of the filter building, but the louver is not. Adding a wing wall would be an easy fix.
DS-19 Allow the product recovery tank (PRT) to be above ground where site conditions make it appropriate	Concur	There are situations where an aboveground PRT would be very desirable (very corrosive soil) and could easily be done.
DS-21 Remove requirement for precast panels on filter buildings and pump houses on cut and cover standards	Concur	The exterior walls could be built on site rather than requiring precast panels. There will be a cost savings associated with this change. A note could be added to the drawings allowing other methods subject to approval
DS-24 Develop standard designs for military vehicle station	Concur	A military service station (MSS) standard is wanted to assure consistency, clear requirements, help with anticipated costs, conformance to codes, etc.
DS 25 Develop standard design for fuel test labs	Concur	A lab standard has been funded and is work in progress.
DS-26 Develop standard design for shop-fabricated tanks	Concur	More than once a shop-fabricated tank standard has been started, but has not been completed. This is a standard which would be useful to help with consistency, requirements, costs, codes, etc.
UFC-4 Revise tank coating requirements to more closely match industry standards	Concur	Revisions to the tank coating are in progress.

UFC-5 Eliminate requirement for API certified pumps for non-aviation applications	Concur	Steps for incorporating non API pumps are already being taken to allow their use in some situations.
UFC 13 Allow full bore, double block and bleed gate valves for isolating fuel as permitted by Service HQ	Concur	There are some situations where a double block and bleed gate maybe acceptable. The cost of a 12" DBB plug ($31K), ball ($25K), and gate ($30K). Double block and bleed plugs are commonly used on river crossings for emergency isolation. Currently there is no government specification for gate valves.
FPE-1 Develop project review protocols for all DoD fuels projects to require standards and criteria review by appropriate representative agencies and experienced personnel	Concur	Requirements for fuels experience in each fuels project is essential to quality and cost overruns. This goal has been sought for decades, but even today is not being met. A plan to make this happen by writing requirements into the UFC or other means should be pursued. Note: POL-TXC or NAVFAC-EXWC, both experienced fuels design review groups.
FPE-2 Establish a fuels training program for government construction personnel	Concur	Training (experience) for government construction personnel really makes a lot of sense. Some method of providing this training (DVD, site visits by designers, formal training) should be considered, but cost needs to be considered.
FPE-3 Identify non-voting DoD VE representative to FFEP	Concur	A VE representative involved with the fuels program would assure proper documentation is gathered for all VE concerns.
FPE-4 Require results of VE screening tool be sent to POL-TCX and DoD VE representative on FFEP	Concur	As a courtesy and a method of assuring consistency the results of the VE Screening Tool should be sent to POL-TCX/NAVFAC-EXWC and FFEP VE representative
FPE-5 Establish operations order from HQ USACE for POL TCX	Concur	Providing design fuels experience in each fuels project is essential to quality and cost overruns. One method of obtaining design experience is establishing the operations order. The operations order should be sought. Something similar is recommended for NAVFAC-EXWC.
FPE-6 Develop an addition to the DLA PM design review checklists ensuring POL-TCX review and coordination at project kick-off and at 35% design review	Concur	Providing design fuels experience (POL-TCX/NAVFAC-EXWC) at each level of design is essential to quality and cost overruns.
FPE-7 Revise Design Authorization (DA) memo to include specific guidance to include POL TCX in the design process and precise reference to the fuels standards and specifications from overview information	Concur	Design experience (POL-TXC/NAVFAC-EXWC) is left out on each project, perhaps a more defined requirement would get the experience desired.
FPE-8 Ensure personnel preparing project requirements and RFPs have appropriate and up-to date design experience on fuels projects	Concur	Folks with experience have a much better chance of doing the job right.
FPE-9 Reference DLA sustainability and energy efficiency policy in RFP/contract documents	Concur	This would be an excellent way of ensuring energy concerns are addressed in DLA projects. Should add the following "...referenced SDD practices "and documentation".
FPE-10 Reference the DA memo in contract documents	Concur	An excellent means to assure the AE is aware of the DA memo.
FPE-11 Make applicable DoD fuels experience mandatory for general contractor on all fuels projects	Concur	Contractor fuels experience is necessary to help the contractor from making costly mistakes.
FPE-12 Make applicable DoD fuels experience mandatory for A/E design contractor on all fuels projects	Concur	Fuels experience is important.
FPE-13 Use a programmatic approach to identify project acquisition strategy	Concur	Small business projects could use this help.

RECOMMENDATIONS TO BE FURTHER EVALUATED		
DS-4 Revise redundancy requirements for pumps in cut and cover systems standards	TBD	The redundancy requirement came from Sanford Ohio to meet Japan's requirements. PACAF should be consulted before changing.
DS-17 List the risk categories of all structures, systems, and components in the DoD standards. Eliminate unnecessary conservative selection of risk category	TBD	Yes, risk categories should be provided. Current requirements are not being met (Cat IV for pumphouses makes sense, but requires equipment shake test which is costly and not being done). A suggestion should be made and reviewed before incorporation.
DS-23 Eliminate the coating requirements between concrete and grout at the bottom of the tanks on cut and cover standard	TBD	Why the coating system was placed into the standards is not fully understood, it might be for the secondary containment. Someone should investigate to assure this expense is necessary, probably should consult with Gerald Sanio.
UFC-1 Allow the use of non-metallic pipe for transfer pipelines (i.e., HDPE)	TBD	Use of non-metallic pipe is being considered as the cost savings is enormous. Non-metallic pipe is not an industry standard, so precautionary steps are being made.
UFC-2 Use eyewash-only stations in lieu of emergency showers	TBD	Although this would be an acceptable practice in the private sector, the DOD health and safety folks may want to error on the side of safety. Need to consider all fuels, not just JP8.
UFC-6 Allow partial weld inspections for aboveground or low-pressure systems	TBD	Original requirements were based on ASME B31.3, severe cyclic conditions, and fuel in the piping. Requirements may have changed, so the codes should be reviewed to assure 100% radiography is required on the high pressure side of the piping. Low pressure (pump suction) side of the piping constitutes a very small part of the piping system.
UFC-7 Revise the specification for carbon steel pipe to allow ERW pipe	TBD	Some big changes were made to the guide specs a couple of decades ago because of the bad fuel piping and subsequent law suites. DOD stainless steel piping can be seamless or seamed, why does carbon steel have to be only seamless? Perhaps another look at what is available is in order.
UFC-8 Eliminate or separate criteria unique to JP-4 from criteria, specifications, and standards	TBD	Direction at the time when military fuel was changed from JP4 to JP8 was to design around JP4 in case it was brought back, this direction has not changed. The systems are much safer using JP4 criteria, but does come at a cost.
UFC 12 Revise criteria to allow the use of contaminant analyzers in lieu of filter/separator at the aircraft direct fueling station	TBD	The use of contaminant analyzers is now being allowed in certain situations.
UFC-14 Verify if the structures in the DoD standards are mission-essential systems, meaning Risk Category "IV"	TBD	Repeat of DS-17, a review is recommended.
UFC 15 Reduce select standoff distances to those allowed by commercial industry standards	TBD	A review of the stand-off distances should be made and presented the FPEP for review.
REJECTED / NON-CONCUR RECOMMENDATIONS		
DS-1 Reduce the size of hydrant valve pits to closer match industry standard sizes	Non-Concur	Commercial type hydrant pits could be used in many situations, but do not permit defueling. One of the Service Headquarters was greatly interested in commercial pits to save a project, but DOD as a group may not believe this is a good strategic plan.
DS 5 Locate generator in a weatherproof enclosure on cut and cover standard	Non-Concur	The Cut and Cover systems are intended for locations requiring hardened structures to protect the fuel assets. Placing the generator outside in a weatherproof enclosure does not provide protection in a war time environment. Adding T-walls would help, but wouldn't be standardized, and really isn't permanent.
DS-6 Revise standards to allow options and performance specifications to suit site-specific conditions of non-fuel aspects	Non-Concur	Many of the non-fuels items have very little detail, so a lot of leeway is already provided.
DS 7 Revise standards to allow bridge crane in pump house to be optional item	Non-Concur	The standard does allow for changes via the waiver process, so in those specific cases where it is apparent the bridge crane is not wanted a waiver should go through without a problem.

DS-12 Develop separate standards for enclosed pump rooms and exterior covered sheds	Non-Concur	To provide standards for every possible configuration would take a great deal of effort. Deviations from the standards for specific design issues are relatively easily accomplished during the design phase.
DS-13 Clarify fire protection requirements of pump houses in design standards	Non-Concur	In most cases there have been no problems with the definition (suppression required on pumphouses in excess of 50% of the base capacity), but occasionally the interpretation gets twisted around. Example: Even though the 1800 gpm pumphouse is smaller than the 2400 gpm system, there is more storage (capacity) therefore fire suppression is required. No matter how well it is written a better smarter idiot will be provided.
DS-14 Separate and identify equipment specifications that result in energy efficiency in design specifications	Non-Concur	Providing all of the energy efficiency items up front would limit the features available and require the keepers of the standards to research and update when ever new ideas become available. Making each designer in each project find and provide the energy efficiency items keeps new ideas rolling in.
DS-16 Eliminate requirement for contractor to provide training valve	Non-Concur	A training valve is necessary for the troops on the ground.
DS 20 Eliminate the 2" relief line from the pantograph positions back to the pump house	Non-Concur	The pantograph pressure control valve cannot operate properly without the 2" relief line.
DS-22 Revise cut and cover standard design to require parapet on pump house and filter building	Non-Concur	Parapets were eliminated in the latest revision of the standards. In either case the roof slope is needed.
UFC-3 Eliminate surplus capacity requirements for generator and electrical equipment	Non-Concur	There is no 25% spare capacity required for panels, switchgear, and generators. Essentially we are already where this suggestion is trying to take us. (There were some Middle East projects requiring 25% spare capacity.)
UFC-9 Use variable frequency drives for pump motors (similar to industry)	Non-Concur	The use of variable frequency drives is becoming more prevalent, but has not become common enough. The use of single speed pumps is easily designed, installed, and maintained. Variable frequency drives really reduce energy consumption when lots of fuel is dispensed, whereas most military systems are only fully utilized during war time.
UFC-10 Revise standards for coatings on inside face of pipelines	Non-Concur	Recently completed; review occurs on a cyclic basis.
UFC-11 Revise criteria in UFC to allow options for features of smaller projects in lieu of "one size fits all"	Non-Concur	Providing a separate standard for each possible situation would be a very big undertaking. The design process should allow for minor deviations of the standards and has a process for the larger changes via the waiver process.

Acronym Definitions	Acronym Definitions
DS Design Standard	NATO North Atlantic Treaty Organization
UFC Unified Facilities Criteria	DOD Department of Defense
FPE Fuels Program Execution	VE Value Engineering
POL-TCX Petroleum/Oils/Lubricants with Technical Expertise	JP4 Jet Fuel (Jet Propellant 4) 50-50 kerosene-gasoline
NAVFAC-EXWC Naval Facilities Engineering & Expeditionary Warfare Center	JP8 Jet Fuel (Jet Propellant 8) kerosene-based fuel (Less flammable than JP4)
FFEP Fuels Facilities Engineerig Panel	PACAF Pacific Air Forces
DLA Defense Logistics Agency	RFP Request for Proposal
HDPE High-density polyethylene	AE Architect Engineer
API American Petroleum Institute	

ATTACHMENT D

INFORMATION PAPER

USACE Value Engineering (VE) for Defense Logistics Agency (DLA) Fuel Facilities

(Revised February 12, 2014)

US Army Corps of Engineers
Headquarters

Information Paper **Revised February 12, 2014**

SUBJECT: U.S. ARMY CORPS OF ENGINEERS (USACE)
Value Engineering (VE) for Defense Logistics Agency (DLA) Fuel Facilities

1. BACKGROUND: USACE often serves as the design and construction agent for DLA Fuel Facilities worldwide. The projects typically consist of both standard designs (for pressurized hydrant fueling systems, aboveground steel fuel storage tanks, and hardened structures) and nonstandard components (which are more site-specific). Fuel Facilities are mission critical and highly technical, and adherence to the design standards are considered essential. The standard designs have evolved over many years, and are administered by the multi-service Fuel Facilities Engineering Panel (FFEP). No modifications to the standard designs are to be made without prior approval of the FFEP. To address VE statutory and regulatory requirements, a strategic level VE workshop was held early in FY13 at Omaha District, with participants from DLA, the FFEP, and the Fuel Facilities Center of Expertise. The objective of the workshop was to identify and define VE requirements for all Fuel Facilities projects. A second VE workshop was held in August 2013 at Omaha District, addressing Fuel Facilities standard designs, applicable portions of the UFC (Unified Facilities Codes), and program execution.

2. KEY OUTCOMES: The primary recommendations of the first workshop were (a) to conduct a programmatic (Level 5) VE study of the design standards, updating them every 3-5 years (or as needed when a major change to the standards render previous VE studies substantially not applicable); (b) the development of a program-specific VE Screening Tool for the nonstandard components of projects; and (c) a recommendation that a VE specialist from one of the services serve on the Coordinating Committee of the FFEP. The VE study workshop of the standard designs was conducted on 19-23 Aug 2013; the final report was submitted in September 2013. Disposition of the VE alternatives was completed in February 2014, with several alternatives still requiring additional review and study (these will be included when disposition is completed, as applicable).

3. VALUE MANAGEMENT PLAN: USACE is now using an automated VE Screening /Strategy Selection/Value Management Plan (VMP) tool which identifies "Opportunity for VE" vs "Low Opportunity"; allows selection of the level of effort most appropriate if "Opportunity for VE" is determined; and documents the decisions made in the VMP. The automated VE Screening Tool consists of a series of worksheets prepared by the VE Officer (VEO) that conclude with the VMP, which is then inserted in the PgMP/PMP. The programmatic DLA VE study and the program-specific VE screening tool are to be integrated with this system. https://cops.usace.army.mil/sites/VE/Portal/default.aspx?RootFolder=%2Fsites%2FVE%2FPortal%2FScreening%20Strategy%20Selection%20%20VMP%20Tool%2FScreening%20Tool%20and%20Narative&FolderCTID=0x01200021FE380C6C9CEC4196EFF5FFAFDB7839&View={465E3A20-A6E5-4CFE-A063-37B4EB5B2615}

The Project Manager (PM), working with the District VEO, will create a **Value Management Plan (VMP)** as part of the overall Project Management Plan (PMP), using the new standardized VMP format (ie., USACE VE Screening Tool). Each DLA – Fuel Facility VMP will have two components (described below), including (a) standard designs, using approved Bridge results (as applicable) from the Level 5 programmatic VE study of DLA – Fuel Facilities standard designs and UFCs , and (b) project-specific nonstandard components, assessed using the specific DLA Fuels VE screening tool.

(a) DLA-Fuel Facilities Standard Designs, UFC, and Program Execution: Each DLA-Fuels Facilities project will document and capture applicable VE cost avoidance/cost savings (CA/CS) from approved VE recommendations for the standard designs used on each project, in the form of the "Bridge" level of effort in the USACE Screening Tool. The VMP will document that VE recommendations for the specific standard designs and UFC that have been incorporated in the project design. The attached worksheet (Attachment A) identifies FEEP-accepted VE recommendations, their potential cost avoidance, and qualitative recommendations (yes/no), and includes a column where the VEO and PM shall indicate whether the recommendation is applicable to the specific project.

(b) DLA-Fuel Facilities Non-Standard Designs: The USACE standardized VMP is a product of the USACE VE Screening/Strategy Selection/VMP tool, which directs the user to program-specific VE Screening Tools when they are available – in this situation, the PM and District VE Officer will then use the DLA – Fuel Facility VE Screening Tool for the non-standard components. The DLA-Fuel Facilities VE Screening Process will be completed to assess whether the non-standard components of the project have low or high opportunity for additional VE. The completed DLA-Fuel Facilities VE screening tool output will be incorporated into the VMP for the project. The recommendation for whether additional VE is warranted shall be approved by the District VE Officer. If additional VE is identified as having potential, options include Level 1 Value Planning (i.e, Value-Based Design Charrette), or a conventional Level 2 (Abbreviated VE Study) or Level 3 (Standard) 6-step VE study.

4. IMPLEMENTATION:

(a) DLA Fuel-Facilities Projects will utilize the VE Screening /Strategy Selection/Value Management Plan (VMP) tool to develop the VMP, as required. Projects will utilize the "Bridging" level to document those approved aspects of the Programmatic Standard study (if applicable) that are incorporated into the project. Additionally, the DLA Fuels Screening tool will be used to assist PMs/VEOs/PDTs in determining the level of effort required on the non-standard portions of the project. Both the Bridge level results (from the standard designs programmatic study) and the screening tool results shall be documented within the VMP for budgeting, scheduling, and resourcing at the Project Initiation/Planning phase of the PMP. For non-standard DLA Fuels projects, the VE Screening /Strategy Selection/Value Management Plan (VMP) tool will be used to determine the level of effort required, and documented within the VMP.

(b) Directives will refer to compliance with ER 11-1-321 Value Engineering (latest version), DoDI 4245-14 DoD Value Engineering (VE) Program, and OMB Circular A-131.

(c) DLA-USACE MOA will include guidance and path forward specified in this Information

Paper stating that for VE, DLA will follow USACE (executing agent) current policies/procedures; for DLA Fuels Specific, they will follow the two part VE screening process to determine level of effort required.

Point of Contact: Mr. Jeffery T Hooghouse, AIA, CVS
Chief, Office of the Value Engineer
Headquarters, US Army Corps of Engineers (CECW-CE)
202-761-5533 jeffery.t.hooghouse@usace.army.mil

POLICY LINKS:

Pub. L. 111–350, §3, Jan. 4, 2011, 124 Stat. 3718
http://uscode.house.gov/cod/t41/bill.pdf

41 USC 1711 - Value engineering
http://ve.ida.org/ve/pages/41-USC-Sec-1711-VE.pdf

Pub. L. 104-106, Office of Federal Procurement Policy Act, Section 5122
http://www.gpo.gov/fdsys/pkg/USCODE-2006-title41/pdf/USCODE-2006-title41.pdf

41 USC 432 - Sec. 432. Value engineering
http://www.gpo.gov/fdsys/pkg/USCODE-2006-title41/pdf/USCODE-2006-title41-chap7-sec432.pdf

Conference Report 99-1013
http://finance.senate.gov/library/reports/conference/download/?id=3e0d273c-a307-4748-a3bc-cf344d5aceab

Office of Management and Budget (OMB) Circular A-131 (26 December 2013)
http://www.whitehouse.gov/omb/circulars_a131

ER 11-1-321 (Change 1), Army Value Engineering
http://140.194.76.129/publications/eng-regs/er11-1-321/Change_1_Jan2011.pdf

Department of Defense Instruction Number 4245.14 (10 Sep 12) DoD Value Engineering
http://www.usace.army.mil/Portals/2/docs/Value%20Engineering/DODI-4245.14-10Sep12.pdf

OTHER RECENT POLICY DOCUMENTS:

OSD (Kendall Memo), Value Engineering (VE) and Obtaining Greater Efficiency and Productivity in Defense Spending, 06 DEC 2011
http://ve.ida.org/ve/documents/VEandEfficienciesMemo_Signed6Dec2011.pdf

Chief of Engineers (Commander's Intent), Greater Efficiency and Productivity through Value Engineering (VE), 25 APR 2012)
http://www.usace.army.mil/Portals/2/docs/Value%20Engineering/Chief%20of%20Engineers%20Policy%20Letter%20on%20VE%20FY12.pdf

USACE Value Engineering Website
http://www.usace.army.mil/ValueEngineering.aspx

PROGRAMMATIC FUEL FACILITIES VALUE ENGINEERING STUDIES

Value Engineering Program Requirements for Fuel Facilities Projects, Final Value Engineering Study Report, USACE Omaha District, prepared by Value Management Strategies, May 2013

DoD Fuels Facilities Program and Standards, Final Value Engineering Study Report, USACE Omaha District, prepared by Value Management Strategies, 13 September 2013

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Appendix J

POL-MCX Technical Support Program Management Plan

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Appendix K

Omaha Fuels MILCON Program Management Plan

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DLA MILCON Requirements Documents

Requirement Document: Detailed risk document summarizing the environmental, site approval, and justification/economic analysis

DLA MILCON timeline:

FY-4: receive Assignment List
FY-3: Complete Requirement Document
FY-2: Complete 35% design (30-Jun)
FY-1: Complete 100% design
FY: Construction Award
FY+4: Construction funds expire

Requirements Document Process Summary:

1. **Project Assignment List and Acquisition**
    a. Strawman and IPRB committees prepare Project Assignment List
        i. Project concept
    b. DLA sends Project Assignment List to POL-MCX
        i. POL-MCX evaluates projects
        ii. Develop
            1. Plan
            2. Scope of Work
            3. Design Agent
                a. In-House
                b. A-E (and which company)
                c. Determined based on
                    i. Location (OCONUS or CONUS)
                    ii. POL-MCX familiarity with Installation
                    iii. Impact on In-House workload (conflict with 35% design deadline)
            4. Budget
    c. POL-MCX sends budget to DLA for funding
        i. MIPR arrives in approximately 60 days
            1. PIF
            2. P2
            3. Labor codes
        ii. A-E award
            1. Update CAM
                a. Scope
                b. SCAR
                c. PASB
                d. Labor
                e. IGE

2. Technical Analysis
3. Negotiations
4. Contracting review

d. POL-MCX contacts Installations
    i. Clear schedules
    ii. Explain intent
    iii. Fill out requirements for detailed risk document
        1. Environmental
        2. Site approval
        3. Justification/Economic analysis

2. Execution

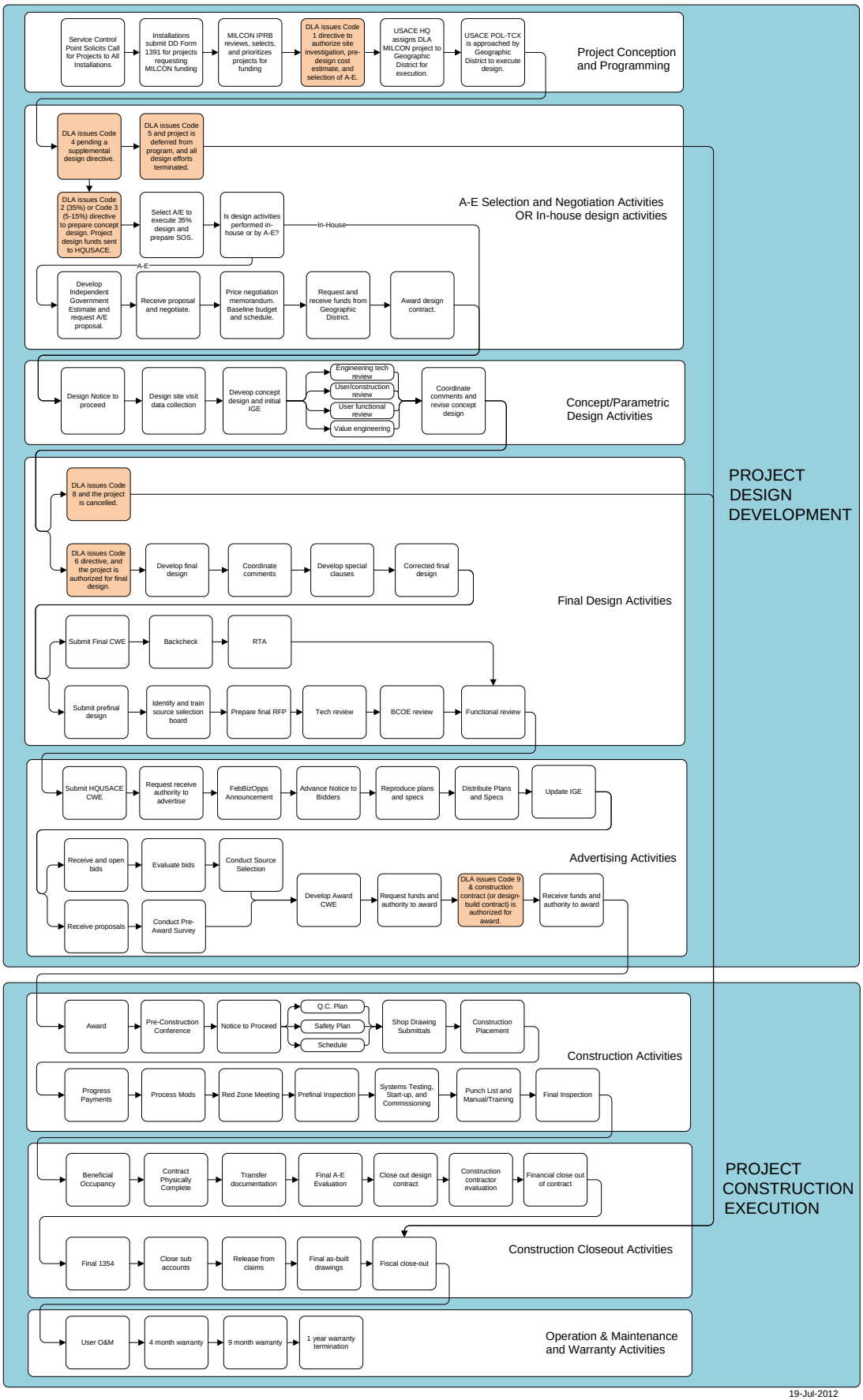
a. Site visit (2-3 days)
    i. Seek engagement with Base personnel to assist with document development
    ii. Gather information
b. Participants
    i. DLA
    ii. Installation
        1. Fire
        2. Communications
        3. Utilities
        4. Master Planning
        5. Architecture
        6. Anti-Terrorism
        7. Airfield Management
        8. POL
        9. LFM
        10. CE group
        11. Ordnance
c. In-brief (first hour)
    i. Review agenda
    ii. MILCON process
    iii. Project scope
    iv. Plan
    v. Size
    vi. Review DLA-provided outline for Requirement Document components
d. Discussion
    i. What Installation currently has
    ii. What Installation needs
    iii. Issues
    iv. Site visit with photos

e. Installation mission requirements
    i. Fuel requirements
    ii. Equipment
    iii. Justify need
        1. Economic analysis
        2. Is the project feasible money-wise

f. Interview all Base personnel
    i. Discuss risks for each discipline
g. Prepare summary meeting minutes
    i. Identify due-outs
    ii. Develop schedule to develop Requirement Document and send draft document for review

3. Deliverables
    a. Draft Requirement Document distributed
    b. Formal DrChecks review
    c. Formal review teleconference
        i. Discuss review comments
        ii. Design agent responds to comments
    d. Design Agent incorporates changes and issue final report
    e. DLA approves Requirement Document
        i. Disapprove if risk is too high
    f. DLA tags project as eligible for 35% design funding (reference MILCON flowchart)

DLA FUELS MILCON PROCESS



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Appendix L

Omaha Fuels Emergent/Emergency Program Management Plan

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Appendix M

Omaha Fuels CMP Program Management Plan

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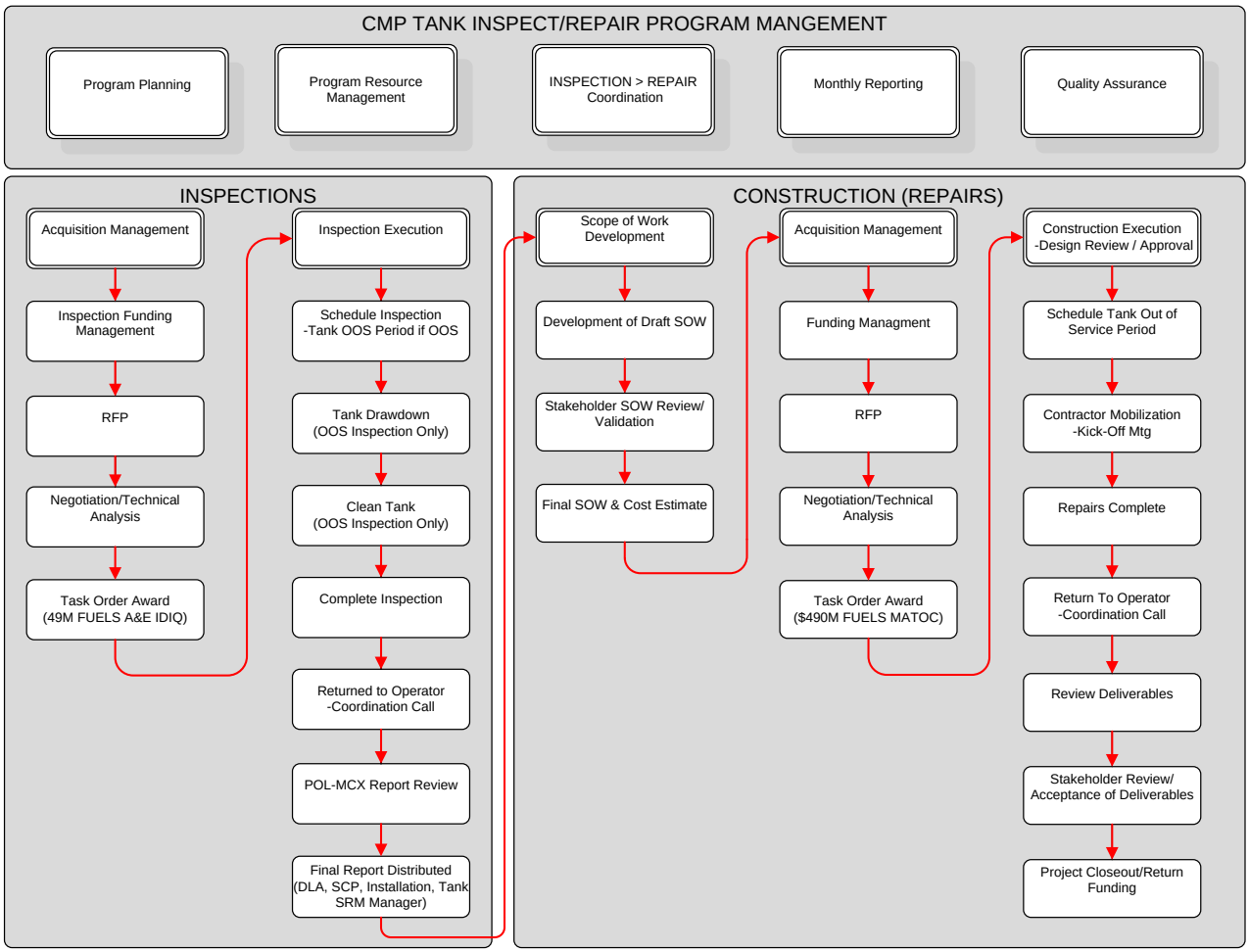
CMP TANK INSPECT/REPAIR PROGRAM MANGEMENT
Program Planning
Program Resource Management
INSPECTION > REPAIR Coordination
Monthly Reporting
Quality Assurance
INSPECTIONS
Acquisition Management
Inspection Funding Management
RFP
Negotiation/Technical Analysis
Task Order Award (49M FUELS A&E IDIQ)
Inspection Execution
Schedule Inspection -Tank OOS Period if OOS
Tank Drawdown (OOS Inspection Only)
Clean Tank (OOS Inspection Only)
Complete Inspection
Returned to Operator -Coordination Call
POL-MCX Report Review
Final Report Distributed (DLA, SCP, Installation, Tank SRM Manager)
CONSTRUCTION (REPAIRS)
Scope of Work Development
Development of Draft SOW
Stakeholder SOW Review/ Validation
Final SOW & Cost Estimate
Acquisition Management
Funding Managment
RFP
Negotiation/Technical Analysis
Task Order Award ($490M FUELS MATOC)
Construction Execution -Design Review / Approval
Schedule Tank Out of Service Period
Contractor Mobilization -Kick-Off Mtg
Repairs Complete
Return To Operator -Coordination Call
Review Deliverables
Stakeholder Review/ Acceptance of Deliverables
Project Closeout/Return Funding

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Appendix N

Omaha Fuels PPS Program Management Plan

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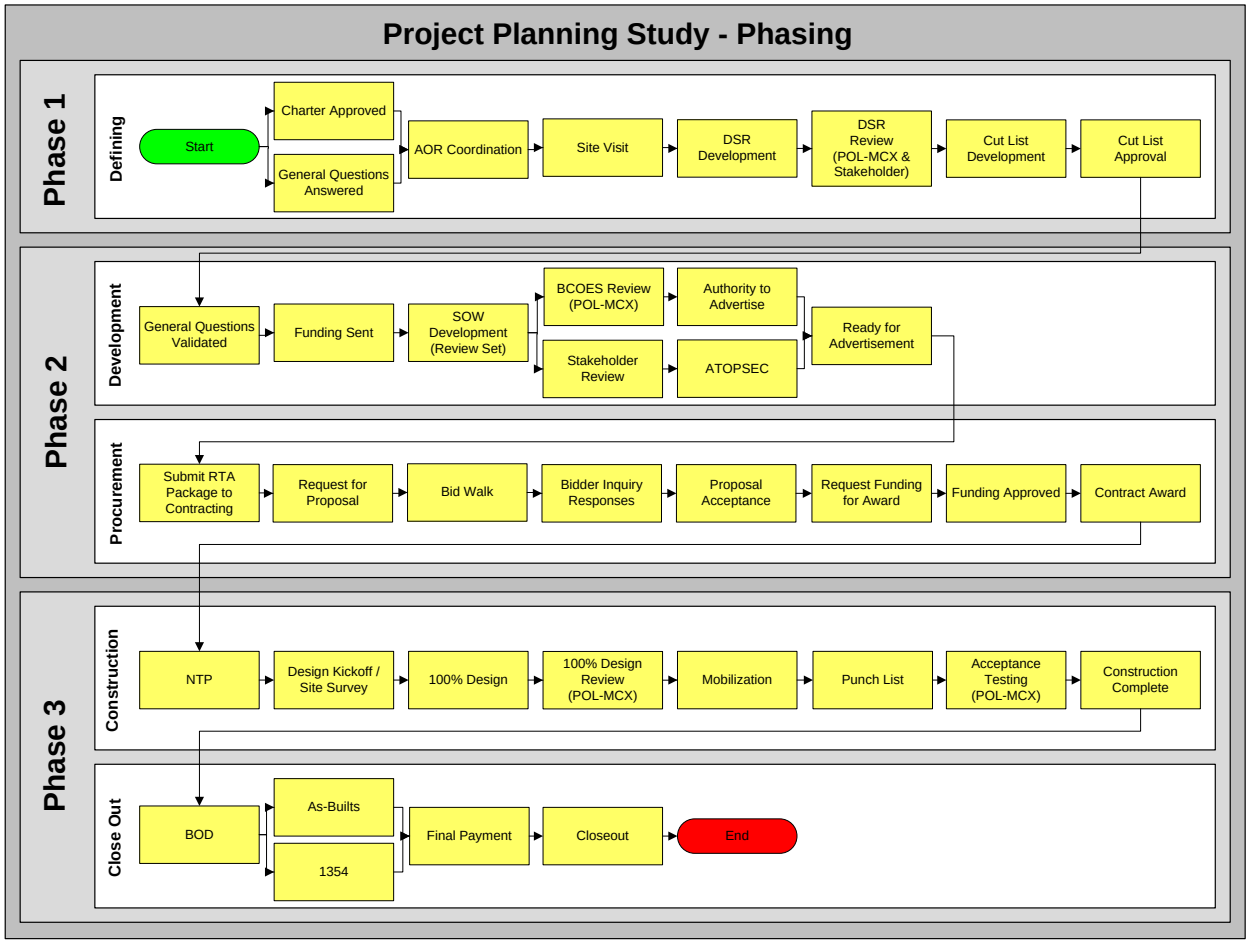
Project Planning Study - Phasing
Phase 1
Defining
Start
Charter Approved
General Questions Answered
AOR Coordination
Site Visit
DSR Development
DSR Review (POL-MCX & Stakeholder)
Cut List Development
Cut List Approval
Phase 2
Development
General Questions Validated
Funding Sent
SOW Development (Review Set)
BCOES Review (POL-MCX)
Stakeholder Review
Authority to Advertise
ATOPSEC
Ready for Advertisement
Procurement
Submit RTA Package to Contracting
Request for Proposal
Bid Walk
Bidder Inquiry Responses
Proposal Acceptance
Request Funding for Award
Funding Approved
Contract Award
Phase 3
Construction
NTP
Design Kickoff / Site Survey
100% Design
100% Design Review (POL-MCX)
Mobilization
Punch List
Acceptance Testing (POL-MCX)
Construction Complete
Close Out
BOD
As-Builts
1354
Final Payment
Closeout
End

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