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of Engineers®**

ENGINEERING AND CONSTRUCTION BULLETIN

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Subject: Results of the FY 10 HQUSACE Led Design and Construction Evaluation Program

Applicability: Information

1. Reference:
 - a. ER 415-1-13, Design and Construction Evaluation, 29 February 1996
 - b. ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999
2. Purpose: The purpose of this ECB is to highlight the results of the FY10 HQUSACE led Design and Construction Evaluation Program of select projects/programs throughout the command.
3. In FY 10, two HQ-led DCEs were conducted; one program/project specific DCE was conducted by HQ personnel; and HQ participated in two MSC-led DCEs. This ECB provides the summary level results of those DCEs. Lessons Learned regarding the DCE Process, and proposed programs, projects, and focus areas for FY 11, are also included.
4. PROGRAM AND PROJECT SELECTION:

Programs selected for HQ-led participation included: BRAC, Grow the Army, and Restationing. These were conducted at Fort Carson and at Fort Sam Houston. HQ representatives also performed an abbreviated evaluation of the program for DLA facilities at Tracy Army Depot. For MSC-led evaluations, HQ participation continued with the Portuguese Dam in Ponce PR, and in the evaluation of the design and construction of an Air Force hangar at Nellis AFB. For the HQ led DCEs, individual projects were selected to illustrate the breadth, geographic dispersion, and chronology of the program – normally the suite consisted of a project in the early stages of programming or design; one in design; one under construction; and one recently completed/occupied. Where a COS, CX, or other USACE element was in support of the program, the DCE process and team composition was adjusted to ensure that the overall product delivery process was evaluated. For FY10, representatives from NCO and CESO were added to the team to ensure that the important aspects of procurement and safety were not overlooked in the evaluations.
5. HQ-LED PROCESS: The evaluation process for each DCE began with conference calls between HQ E&C and the cognizant MSC Business Technical Directorate representatives to determine initial focus areas. Once these were determined, MSCs queried their Districts and developed a list of candidate projects for evaluation (using the criteria listed

above). Subsequent meetings and calls were used to finalize project selections, identify candidate team members, identify funding requirements, make travel plans, and outline data requirements. MSC and District representatives posted relevant data to ftp sites so team members could develop advance familiarity with the projects, enabling them to make better use of their time on the ground. The evaluations focused on processes and controls to determine if the resulting projects were executed pursuant to USACE doctrine and produced consistent and positive outcomes. The DCE members, working with technical representatives at the MSC and cognizant District and Area/Resident Offices, evaluated whether programming documents and selected design criteria resulted in coherent designs; whether the design and/or design criteria were current and adequate; whether the acquisition planning efforts and the acquisition strategy were appropriate; and whether the quality and fiscal management processes and systems were adequate to produce products and services that meet the customer's budget, schedule and mission requirements. Document and process reviewed included programming and funding documents, program and project management plans, design analyses and calculations; agency technical reviews, pre-award contract formation documents, contracts, plans, specifications, deliverables, constructed works and closeout procedures. Overall metrics for cost and time growth, safety work hours and incidence reports, etc. were also reviewed when available and applicable.

6. **BRIEFINGS and REPORTS:** DCE Teams received in-briefings from the cognizant District, Area, Resident, and Integrated Project Office representatives. The DCE Teams conducted in-briefings (on the first day) and preliminary out-briefings (on the last day) at each of the locations visited (Districts, Area/Resident Offices). Conference calls were available for cognizant geographic District, MSC, COS and CX members who could not be physically present at briefings. Team members continued their review of data back at their home stations, exchanging comments and gathering additional information as needed to produce the DCE Report. The DCE Reports were sent first in draft form to representatives of the MSC Business Technical Division, Team Members, and to representatives from the Districts, Area and Resident offices visited. After comments were addressed, the reports were sent under signature of the Chief, E&C to the cognizant regional Chief, Business Technical Division.

7. **SUMMARY FINDINGS :** One Up (+) and One Down (-) Format

PROGRAMMING and BUDGETING

+Program and Project Managers are adept at anticipating and organizing the myriad of requirements, funds types, and required completion dates, even when those requirements cross district boundaries and involve multiple contracts.

-More attention is needed to ensure that the integrity of the overall programming process conforms to the scope and funding limitation in the approved 1391, and to ensure that the 1391 includes sufficient types and amounts of funds to support the types of acquisition, design, and construction efforts planned.

+COS, CX, and other centralized management approaches enhance our ability to share lessons learned.

-These lessons learned are not being input to our automated eLL system.

+The BRAC program allow for more flexible use of contingency funds across projects. Some Districts are successfully managing these funds, in conjunction with the cognizant DoD Commands, to increase or decrease contingency throughout the construction phase, to better reflect remaining project risks.

-Overall USACE MP programming guidance is based on project-specific funding.

PROGRAM MANAGEMENT PLANS

+ More attention is being devoted to the development and updating of PMPs.

-Many of the plans do not contain sufficient detail about the roles, responsibilities, and funding (amounts and types) for quality management activities, and for CX involvement during design and construction phases. Quality Management Plans were generally found to be lacking specific details to insure a quality project.

+Some Districts did sufficient advanced planning and arranged for sufficient advance funding, to anticipate and staff for workload increases. This was facilitated by favorable interpretation of BRAC funding rules and cooperation at all levels, including installation planners and DPW.

-More advanced planning is required to shift resources within a region; or to another region experiencing program growth; or for reductions in personnel as programs are executed and resource requirements taper off.

DESIGN ACTIVITIES

+Districts are adopting post-award, pre-design activities, such as an additional design charette, to ensure that a DB contractor is fully cognizant of the customer's requirements.

-Planning for site specific constraints and capabilities (eg: capacity of existing utilities, installation-wide agreements with regulators, etc.) could be improved both pre and post-award.

+ Military Programs has fully embraced the tenets of DB acquisition.

-Design narratives, calculations, and drawings are not fully integrated (sub consultants and modular component designs are not reviewed by prime or other design disciplines), and they do not always evidence peer review and DOR review/approval.

-In some cases, filed offices tend to defer to the DORs judgment without exercising independent judgment

+Many innovative solutions to customer requirements including those associated with energy savings and sustainability have been implemented in new military facilities.

-The impact of these features on the balance of the facility, and other systems and building features, have not been fully considered and coordinated in design analyses and

calculations. The interaction of air and vapor barriers with other building components is a prime example.

+Area, Resident, and Integrated Program Offices are soliciting and capturing stakeholder design comments in Dr Checks.

-Many comments remain “open” or “non-concur” even after the design has been accepted and construction is underway or completed.

+AEs are providing a wide range of services to our District, Area/Resident and Integrated Program Offices.

-Not all of these contracts are being managed by registered professionals, within the Engineering elements of Districts, as required by ECB 2007-24 (archive).

+MSCs and Districts are using expertise from COS, MCX, and other “Centers” to assist in their development and application of criteria.

-The “charters” (including roles and responsibilities) of these centers are not always current or clearly documented.

+Designers are incorporating more commercially based standards and criteria, resulting in more efficient designs, using a wider variety of commercially available products.

-There is a potential for confusion when customer or mission-specific criteria are combined with standard or commercial criteria, especially for criteria which impacts multiple features or disciplines (eg: floor loading applicable to both structural and geotechnical design).

+Design build solutions allow for more integrated and timely execution.

-The pressures of time and lack of contract privity with the designer distract from efforts to understand and enforce design responsibility. DB contracts contain specific design responsibility clauses which should be outlined and discussed at the first post award meeting, and revisited at time of project turnover.

+Innovative and integrated design-build solutions offer an opportunity for our in-house personnel to expand their expertise.

-We have not taken full advantage of this opportunity. We focus on the Designer of Record responsibility and deemphasize USACE responsibility for design review, AE contract administration, and overall design quality Additional emphasis and guidance on these matters will be provided in FY 11.

ACQUISITION ACTIVITIES

+Increased cooperation between the NCO, Engineering and Construction elements has resulted in better advance notice of work in geographic areas, more complete and timely debriefing of unsuccessful offerors, and timely award/notice to proceed.

-Similar efforts are needed to ensure that USACE field offices are notified and prepared to provide timely and full staffing of area, resident and program offices. More field office participation on source selection team is needed.

- + Some Districts are also making use of contracts awarded by other DoD services.
- Increased vigilance is needed to ensure that both USACE and the other DoD service understand exactly which party retains the various contract authorities and responsibilities (including monitoring of award amounts and modifications under IDIQ contracts) under the sharing arrangement.

- +USACE elements are making good use of construction phase services to support QA efforts, especially in specialty areas of code compliance and regulatory control.
- Many of these services are being procured under standard services contracts. ECB 2009-5 (archive) requires most of these services to be procured under Brooks Act procedures. Furthermore, more diligent review of these services, and of the persons performing them, is necessary to ensure that the persons performing them are not being mistaken for Government Employees and that the services they are performing are not inherently governmental functions (FAR 7.5).
- ACCASS ratings are generally not timely performed at the conclusion of these services.

- + Application of the tenets of MT has allowed USACE to meet timelines which would have previously been considered impossible. The use of the RFP wizard has saved time and introduced many new and innovative design and construction solutions under the DB delivery systems.
- For FY 11/12, many of the standard facilities will be procured using Adapt-Build (Code T) processes. This will require more traditional DBB contracts, processes, and Quality Management activities. MSCs and Districts are urged to ensure that their DB MATOC and SATOC capacities are adjusted to reflect only those remaining projects that will be procured using DB.

- +MT/MBP process has produced a variety of good templates for adaptation as standards.
- There is a lack of universal understanding about how these standards models were selected; and how they are to be distributed, adapted, and applied (as design-bid-build projects) under the adapt-build process.

- + Integrated Program and expanded Area/Resident office arrangements have been used to deploy many (formerly) District functions nearer to the project site(s).
- Not all functions and files are deployed forward, often resulting in official files and data entries being late, missed or incomplete.

- +ECI, SATOC, MATOC, and other innovative contract mechanisms have led to shorter cycle times for award of some very critical projects.
- The requirements for the ECI delivery system and negotiated task orders under multiple award contracts are not always being followed. Specific improvements are needed in the use of Certified Cost or Pricing Data, audits, approved accounting systems (including CAS), and the use of EVMS.

- +Many projects and programs have made persuasive cases for incorporating furniture purchase and installation by the construction contractor.

-USACE policy still prefers central, separate purchase and installation of furniture which results in inefficient project completion and turnover. Improvements are needed in the management of the furniture installation by HNC.

+Many innovative concepts and systems are being employed to meet enhanced LEED and EPACT requirements.

-Some of the claimed energy savings and preferences are based on optimistic, theoretical, and/or stand-alone assumptions, without full consideration of the possible climatic conditions, space utilization, and adjacent facilities, systems, and equipment.

CONSTRUCTION MANAGEMENT and COMMISSIONING

+Field staff have adapted and grown to handle the unprecedented increases in workload, quickly assimilating and training many new personnel.

-Physical facilities (Resident and Project Offices) and support systems (IT, etc.) have not seen similar increases in size, quality, or capability. Restrictions on the use of S&A by RM need leadership attention.

+Many Districts are using representatives from Construction Phase Services Contracts to supplement Government Staff and to perform specialized QA tasks (code compliance, LEED reviews, etc.)

-Districts must have controls in place to ensure that these representatives have contractor supervision, and that they do not perform inherently governmental functions. In addition, these contracts should be solicited and awarded as Brooks Act professional services, not as standard services contracts.

+ The application of MT/MBP has allowed USACE E&C representatives to become knowledgeable in IBC and other industry codes.

-We sometimes confuse “code compliance” with full satisfaction of project criteria and design requirements. We also do not always enforce the requirements of FAR 52.236-5, which requires that “all work ...be performed in a skillful and workmanlike manner.”

+Time growth is being successfully managed.

- Additional emphasis is needed to ensure that NAS activities are coded for use in QCS/RMS and NAS software should not link remaining duration with percent complete.

+ DB allows contractors to select optimum arrangement of mechanical and electrical equipment within space (SF) limits of the 1391.

-Minimum clearance requirements for O&M and separation distances (eg: combustion air intake and exhaust flue separation, electrical panel clearances) are not always correct. Again, the field tends to defer to the DOR and not make independent judgments.

+DB also permits contractor and designer teams to select specifications which are most relevant to their innovative solutions.

-More attention is needed to ensure that specifications are relevant and complete, and that ALL quality requirements (sample panels, submittals, etc.) are integrated, clearly

understood, and rigorously enforced. Again, Quality Management Plans are generally lacking in detail.

+The use of commercial codes provides for more uniform application across USACE.

-The definition of code criteria terms (ex: “dwelling unit”) has substantial impact for critical life-safety items (eg: tamper-proof electrical outlets). The selection and potential impact of these in the RFP, interpreted under current code criteria, requires more emphasis and attention during criteria development.

COORDINATION AMONG USACE ELEMENTS

+Safety and Construction Offices are increasingly working together to improve accident prevention awareness and training. The results of these collaborations are evidenced in reduced incident and severity rates. On “purple” installations, Districts have been able to benefit from the input and assistance from other DoD commands.

-Increased workload and poor private sector economy result in more contractors, subcontractors, and work practices which have not been previously vetted under USACE programs. More effort is needed to in effect “train” our new industry partners.

+Increased workload has produced more opportunity for cross-training safety specialists in the field and for more dedicated safety positions during facility construction. This again is thought to be responsible for historically low incident rates.

-Design features have not received a proportionate increase in attention to safety. There are many areas where installations and USACE could build in features to enhance safety during O&M activities. This is especially true for fall protection (roofs) and confined spaces.

+Centers of Standardization are turning their attention to the development of BIM models for Adapt-Build.

- Some of the models are direct transfers to previously used contractor designs. They do not include sufficient guidelines for “adaptation” of the design to subsequent locations. They also do not discuss or offer the variety of design solutions (wall and floor types, HVAC systems, etc.) which might be utilized in the AB model.

+Geographic Districts are finding ways to deliver projects (or portions thereof) which installations need to meet mission requirements.

-Some “projects” consist of multiple facilities, consolidated for BRAC purposes, which the installations are not capable of immediately accepting, furnishing, and occupying in a timely fashion. More coordinated programming, contract (phased turnover), and integrated furnishing requirements are needed to make the delivery process more efficient and effective.

+Increasingly complex and costly code requirements, construction materials and techniques have advanced the capability of many individuals at the Centers of Expertise.

-There is no reliable or continuous source of funding to maintain this expertise, nor is the utilization of these experts mandatory or uniform. Furthermore, the USACE central lessons learned system (eLL) is not being utilized to capture and share knowledge.

+The increased volume and diversity of workload has created many opportunities for Districts to share resources and experiences.

-As workloads decline, more communication among Districts, Divisions and HQUSACE is needed to keep these trained resources employed on future projects.

CONFORMANCE TO USACE DOCTRINE, REGULATIONS, AND STANDARDS

+ The concepts and tenets of Milcon Transformation are being liberally applied and utilized.

-The existing USACE guidance documents which are outdated or in conflict with MT and other current innovations are not being updated timely.

+Much more reliance is being placed on performance-based criteria (in lieu of prescriptive requirements and specifications)

-Many of these requirements are poorly written or incomplete – many contain a mixture of performance requirements and vestiges of prescriptive material, reducing their effectiveness and limiting enforceability.

8. LESSONS LEARNED – the DCE PROCESS

PLANNING and PREPARATION – The selection of focus areas, and projects which best reflect those areas, is based on anecdotal information available at HQ.

Lesson Learned: Solicit and consider input from MSCs upon issuance of this yearly ECB prior to finalizing plans for the upcoming FY.

PARTICIPANTS – DCE Team members are selected based on their expertise and availability. The total commitment, including read-ahead and report writing, have not been considered in making these selections.

Lesson Learned: Plan for at least two week of time for pre-visit reading and post-visit report writing for each one week of DCE visit time.

READ-AHEAD MATERIAL –Sufficient information and guidance is not always provided for the cognizant district representatives to assemble the advance documentation.

Lesson Learned: In advance conversations with MSCs, select the minimum documents required in each of the listed categories, then ask for additional data (as the need arises) during the DCE visit. Appoint an MSC POC to handle all follow-up requests for data, documents, or information.

9. FY 11 PROGRAMS and FOCUS AREAS – the following are tentative selections for DCE Visits in FY 2011. At this time, these are very tentative, subject to feedback from MSCs, and based on availability of funding:

ECB No. 2011-7

Subject: Results of the FY 10 HQUSACE Led Design and Construction Evaluation Program

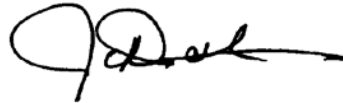
- Air Force Program – Locations TBD, likely candidate SPD.
- Medical Facilities – Locations Fort Belvoir, Fort Sam Houston, and Fort Detrick. Focus on CX and turnover.
- Civil Works O&M – Dam Safety Projects – locations TBD in coordination with the Risk Management Center.
- Civil Works CG – Portuguese Dam, Puerto Rico, subject to funding availability.

10. STANDARD REPORT FORMAT:

The DCE Report remains unchanged, formatted as follows:

- I. Purpose, Background, Participants – Statement of program, project, and focus areas, and a list of the organizations and individuals conducting the evaluations.
- II. Program(s) and Projects Included - Statement of relevant project and program data.
- III. DCE Process – Chronology of activities which comprised the DCE.
- IV. Observations, Discussion, and Recommendations – a brief discussion of the issue, followed by analysis, recommendations for resolution, improvement, and any follow-up actions required.

11. Points of contact for ECB program are Paul Parsonault, 202-761-7423 and Jim Moore, 570-650-3055.



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