DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

CECW-CP

S: 19 September 2007

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Initiatives to Improve Accuracy of Total Project Costs in Civil Works Feasibility Studies Requiring Congressional Authorization

1. References:

a. E-mail message, dated 9 March 2007, subject: Planning Centers of Expertise – Cost Estimating, (Mr. Harry Kitch to MSC Planning Chiefs).

b. Memorandum, CECW-CE, dated 3 July 2007, subject: Application of Cost Risk Analysis Methods to Develop Contingencies for Civil Works Total Project Costs.

c. Engineering and Construction Bulletin No. 2007-17, CECW-EC dated 10 September 2007, subject; Application of Cost Risk Analysis Methods to Develop Contingencies for Civil Works Total Project Costs.

d. Engineering Regulation 5-1-11, USACE Business Process, dated 1 November 2006.

2. Headquarters, U.S. Army Corps of Engineers (HQUSACE) through the Planning Community of Practice (CoP); the Engineering CoP; and the Program and Project Management CoP are working three initiatives that will provide more reliable project recommendations at the feasibility phase of the project by developing project cost and construction schedule contingencies using a standard cost risk analysis program. Cost risk analysis is the process of identifying and measuring the cost and schedule impact of project uncertainties and risks on the estimated total project cost. The goal is to ensure funds are adequately authorized, programmed and appropriated for all phases of the life cycle of the project. Our ability to provide quality project estimates is an essential element of our support to our customers and partners for the successful accomplishment of the project.

3. The first initiative mandates that the National Planning Centers of Expertise (PCX) coordinate with the Cost Engineering Directory of Expertise (DX) at the Walla Walla District for Independent Technical Review (ITR) of cost estimates, construction schedules and contingencies

included in all decision documents requiring Congressional authorization. The Cost Engineering DX will assign the reviewer(s) to the review teams and will utilize the U.S. Army Corps of Engineers personnel and/or the private sector to assure highly qualified persons are available to conduct these reviews. This approach will provide consistency in business practices and in the use of cost engineering tools. The Cost Engineering DX also developed a technical review checklist for the Cost Estimator on the Project Delivery Team (PDT) and the ITR team to ensure that the critical project planning, design and engineering data were available prior to preparation of the baseline cost estimate.

4. The second initiative takes effect on 1 October 2007 and requires that the PDT assists in developing a formal cost risk analysis for all decision documents requiring Congressional authorization for projects exceeding $40 million (total project cost estimate), unless the final feasibility report package was forwarded to HQUSACE prior to that date. For those projects requiring this formal cost risk analysis, the methods described in the referenced bulletin and subsequent guidance shall be applied before the project's next scheduled HQUSACE policy review milestone (Alternative Formulation Briefing, Draft and Final Reports). This method is incorporated in the referenced engineering bulletin and will be used for the development of contingencies for the Civil Works Total Project Cost Estimate.

5. The third initiative is to have Project Managers and their Project Delivery Teams use project risk management principles and methods from the Project Management Institute's Project Management Body of Knowledge in developing a project risk management plan that includes a risk assessment and analysis and a risk response plan to support the cost risk analysis. Development of this plan is supported by our Project Management Business Processes (PMBP) under Project Management Plan (PMP) requirements (see PMBP Risk Management Plan - REF 8007G). Together the project risk management plan along with the cost risk analysis will produce a defensible assessment of the Civil Works Total Project Cost Estimate. This gives the management team an effective tool to assist in managing the planning study and will assist decision makers in making project recommendations.

6. The HQUSACE is making a concerted effort to assure accurate cost estimates, construction schedule and contingency development of projects at the early stages to help formulate alternatives that will lead to more reliable recommendations. Where cost risk analysis is required, it is anticipated that the cost risk analysis will be performed once the recommended plan is identified prior to the Alternative Formulation Briefing milestone. Compliance with this and the other requirements presented above shall be addressed in the ITR documentation and the ITR certification shall include the signature of the ITR Cost Estimator.

7. Points of contact at the Cost Engineering DX are Messrs. Kim Callan, Chief, CENWW-EC-X, 509-527-7511 or James Neubauer, CENWW-EC-X, 509-527-7332.
HQUSACE points of contact are Messrs. Harry Kitch, CECW-CP at 202-761-4721 or Raymond Lynn, CECW-CE at 202-761-5887 or Ms. Mary Gauker, CECW-CB at 202-761-1811.

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ENGINEERING AND CONSTRUCTION BULLETIN

No. 2007-17 Issuing Office: CECW-EC Issued: 10 Sep 2007

Subject: Application of Cost Risk Analysis Methods to develop Contingencies for Civil Works Total Project Costs

Applicability: Civil Works Studies, Projects and Programs

1. Background: Project cost estimates shall be prepared with an appropriate amount of contingencies, depending on the level of investigation data and design detail available, and support each stage or milestone of project development. The level of engineering shall be in accordance with ER 1110-2-1150, Engineering and Design for Civil Works Projects, developed specifically to support the planning phases in ER 1105-2-100, Planning Guidance Notebook. An appropriate level of field investigations and engineering analyses are essential to a competent cost estimate. Contingencies represent allowances to cover unknowns, uncertainties, and/or unanticipated conditions that are not possible to adequately evaluate from the data on hand at the time the cost estimate is prepared, but must be represented by a sufficient cost to cover the identified risk. Contingencies are not a means of adding costs to the project for possible schedule slippage or to cover items which are thought to be a project requirement but are not specifically being considered in the current scope.

Cost risk analysis methods will be used for the development of contingency for the Civil Works Total Project Cost estimate. It is the process of identifying and measuring the cost and schedule impact of project uncertainties on the estimated total project cost. When considerable uncertainties are identified, cost risk analysis can establish the areas of high cost uncertainty and the probability that the estimated project cost will or will not be exceeded. This gives the management team an effective additional tool to assist in the decision making process associated with project planning and design.

2. Purpose: This bulletin has been coordinated with HQUSACE, Directorate of Civil Works, and Program and Project Management Community of Practices, and Policy and Planning Compliance Division. It establishes additional guidance for the development of contingency for Civil Works Total Project Cost estimates as directed by MG Riley's memorandum, Subject: Application of Cost Risk Analysis Methods to develop Contingencies for Civil Works Total Project Costs, dated 3 July 2007.

3. Guidance: A formal cost risk analysis shall be prepared for all decision documents requiring congressional authorization for projects exceeding forty million dollars. This applies to USACE commands having design and/or construction responsibilities for Civil Works. To facilitate this process, the following guidance is applicable:

a. The cost engineer is assigned the responsibility for conducting the cost risk analysis for development of project contingencies presented in the total project cost estimate.

b. The Project Delivery Team (PDT) shall assist the cost engineer in establishment of project contingencies by identifying risks and their potential impacts to cost and schedule.

c. Crystal Ball software shall be used to conduct Cost Risk Analysis. Until a Corps-wide license agreement is negotiated with Decisioneering, the Crystal Ball software is available for purchase through GSA contract #GS-35F-0544P, effective through 24 May 2009.

d. Initial web-based training for cost risk analysis will be provided at no cost and scheduled in Oct 2007. The training is targeted for cost engineers and will be recorded and made available for other PDT members at a later date.

e. Application.

1. During the Feasibility phase, a cost risk analysis shall be performed once the recommended plan is identified. The results of the cost risk analysis will be included in the Feasibility Report and discussed at the Alternative Formulation Briefing.

2. During the PED phase, a new cost risk analysis shall be conducted upon major changes in design and for each update in the Total Project Cost Estimate. A cost risk analysis report shall be included as part of any Post Authorization Change Report to support the revised authorized cost.

3. As required by ER 1110-2-1302, the project cost estimate shall be updated every 2 years. A new cost risk analysis shall be conducted at this time.

4. Points of contact for this bulletin is Raymond Lynn, CECW-CE, 202-761-5887 or Mark Fascher, CECW-CE, 202-761-7750.

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James C. Dalton, P.E.
Chief, Engineering and Construction
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