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of Engineers®**

ENGINEERING AND CONSTRUCTION BULLETIN

No. 2012-21

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Subject: Construction Contract Duration and Beneficial Occupancy Date

Applicability: Clarification and Guidance

1. References:

- a. ER 1110-1-1300, Cost Engineering Policy and General Requirements, March 26, 1993
- b. EP 715-1-7, Architect-Engineer Contracting in USACE, February 29, 2012
- c. PMBP Manual. May 2009, version 1.0
- d. RMS User's Guide, May 9, 2010, version 2.38

2. Recent management reviews of command metrics have identified a trend of excessive Beneficial Occupancy time growth on our projects. The cause of this trend has been identified as a combination of factors ranging from inconsistent understanding of the Beneficial Occupancy Date (BOD) versus Contract Completion date; failure to establish a realistic Original Beneficial Occupancy Date; insufficient basis for establishing the construction contract duration; and change orders arising from errors and omissions, differing site conditions and/or user requested changes; and contractor or Government inefficiency. This ECB clarifies and reinforces existing policy.

3. The Original Contract Required Completion Date, (CC830)* is calculated using the Notice to Proceed Acknowledged date and the original contract duration at time of award (including Options). The original contract duration is established by the Project Delivery Team (PDT) based upon a proposed construction schedule prepared by the designer of record prior to solicitation. If the design is prepared by in-house staff, a proposed construction schedule is still required. The proposed schedule and duration shall be reviewed as part of the Biddability, Constructability, Operability, Environmental (BCOE) review required for all construction contracts. Additionally, this schedule may be used in the validation or review of alternative schedules submitted as part of the source selection process.

*(CC830), (CC850) etc. used herein are standard P2 milestone codes.

4. The Original Beneficial Occupancy Date (CC850) is the date mutually established by the PDT (customer, user, and USACE team) as to when the work will be transferred and accepted by the customer. This date should be established within 30 calendar days after the construction notice to proceed is acknowledged (CC810), and remains fixed for the life of the contract. If there is a major external event impacting the construction duration, such as a significant user requested change, post award protest, or court injunction, the Original Beneficial Occupancy Date, (CC850) may be revised with the approval of the Deputy District Engineer for Program Management. At BOD, there are typically punch list items and other minor construction activities remaining. For military construction, the BOD will be the date the project is officially transferred to the customer for occupancy and intended use, and follow-on contracts (such as IT or furniture installation) may commence. For Civil Works projects this is considered to be substantial completion or when the facility or construction can be used for its intended purpose.

5. It is important to understand the distinctions between the Beneficial Occupancy Date, (CC850), Required Contract Completion, (CC830) and the Construction Contract Completion Date, (CC820). The purpose of Beneficial Occupancy date is to establish a planning parameter defining when the customer will be given control of the facility. The Construction Contract Required Completion date is focused on the performance of the construction contractor and records the date it has met its contractual responsibility. Enclosure 1 contains the complete P2 and RMS definitions for these terms.

6. The original BOD date should be typically established 30 to 150 days after the original Contract Required Completion date. The difference represents a risk based assessment of probable time growth. By acknowledging that the vast majority of projects experience some level of time growth, the customer can better plan its follow-on activities. The causes of time growth range from an excessive number of adverse weather days; design revisions due to errors and omissions; user requested or criteria changes; differing site conditions; contractor or government inefficiencies; etc. Regardless of the cause, a collaborative BOD shall be established in order for the customer to effectively plan its follow-on activities. Enclosure 2 provides a risk based methodology to assist the PDT's in establishing a reasonable Original Beneficial Occupancy Date by calculating an expected time growth. Enclosure 3 provides an updated standard P2 schedule with enhanced logic to more realistically schedule project completion milestones.

7. A study of USACE projects completed in the past year revealed our projects completed in a range of one-half to over 5 times the original contract duration. The RMS data revealed no consistency across the organization, with nearly 20% of the data being questionable or manipulated. The following actions shall be taken to provide consistency of process across USACE:

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Subject: Construction Contract Duration and Beneficial Occupancy Date

a. A construction schedule shall be developed by the designer of record for all construction projects prior to solicitation. The schedule shall be reviewed as part of the BCOE process and be used as the basis for establishing reasonable contract duration.

b. The PDT shall perform and document in the project files a risk based assessment using the methodology provided in Enclosure 2 to establish a mutually agreeable construction contract time growth in order to calculate the original BOD date entered in RMS, which shall not change (except with the approval of the Deputy District Engineer for Program Management as discussed in paragraph 3 above). An initial 60 day time growth shall be used as the starting point of the analysis. The PDT will evaluate factors such as the quality of the design; quality of the requirements definition; previous experience with the contractor; type of construction (renovation, new construction, site work); expected weather days; project location; etc, in order to establish a BOD date that the customer can use for planning purposes.

c. The scheduled BOD will be reviewed monthly and adjusted as required in RMS to reflect the best estimate for when the BOD will actually occur. Revisions to the scheduled BOD shall be reviewed and coordinated with the Project Manager and subsequently the customer prior to being entered into RMS.

8. The point of contact for this ECB is Rick Calloway, CECW-CE, 202-761-7500.

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LLOYD CALDWELL, P.E., SES
Chief, Programs Integration Division
Directorate of Military Programs

//S//
MARK MAZZANTI, SES
Chief, Programs Integration Division
Directorate of Civil Works

//S//
JAMES C. DALTON, P.E., SES
Chief, Engineering and Construction
Directorate of Civil Works

Definitions

The underlined definitions are verbatim extracts from the PMBP Manual, May 2009. The definitions annotated (RMS) are verbatim definitions from the Resident Management System User's Guide, May 2010.

Beneficial Occupancy Date (BOD), CC850 – BOD is the date the customer can expect to receive useful occupancy of the facility or construction work. Although all construction efforts at the construction site may not be completed (for example, punch-list items and other minor construction activities may still be required for construction to be considered complete), and USACE may need to continue administering the final stages of the project construction contract until such completion, the user may begin to occupy all or agreed upon parts of the facility and use it for its intended purpose. The user may initiate follow-on contracts such as furniture or IT roll-outs after this date in order to complete the fit-out of the facility. For Civil Works, this milestone is equivalent to substantial completion, i.e. facility can be used for its intended purpose. Liquidated damages end.

Original BOD (RMS) – This is the date mutually established by the Project Delivery Team (PDT) (customer, user, Area/Resident Engineer, and Project Management as to when the work will be transferred and accepted by the customer. The date should be established within 30 calendar days after contract award and remains fixed for the life of the contract.

Scheduled BOD (RMS) – Initially this matches the original BOD established by the PDT, then is updated as necessary to reflect when BOD is currently expected or scheduled to occur.

Actual BOD (RMS) - This is the actual BOD date. For military projects, this is the date the client should sign the initial DD form, 1354, Transfer of Real Property.

Note: It is possible to have multiple BOD's on a single project. For projects with separate phases, the date in RMS should reflect the last or final BOD for the contract. Local milestones can be added to track multiple BOD's in RMS.

Contract Required Completion, CC830 – This is the date set in the contract for completion. Contract Required Completion date is based on the Actual NTP Acknowledged Date (CC810) plus the contract duration at time of award, including options.

Original Contract Completion (RMS) – This is a calculated date using the NTP Acknowledged Date plus the original (awarded) duration.

Scheduled Contract Completion (RMS) – This is a calculated date using the NTP Acknowledged date plus the current duration, including signed modifications.

Construction Completion, CC820 – This is the date USACE accepts the work as complete. The CO/ACO informs the contractor that liquidated damages will not be or no longer will be, assessed and the warranty period begins on the contract. Construction Completion may occur with or without deficiencies. This term is synonymous with the term “Substantial Completion.”

Construction Completion (RMS) – The date that USACE accepts the work (i.e. LD’s would no longer apply). This is synonymous with the term “Substantial Completion.”

Construction Completion Scheduled (RMS) – This is the date USACE predicts the work will be accepted as complete.

Construction Completion Actual (RMS) – This is the actual date USACE accepts the work as complete. The CO/ACO informs the contractor that liquidated damages will not be or no longer will be, assessed and the warranty period begins on the contract. Construction Completion may occur with or without deficiencies. This term is synonymous with the term “Substantial Completion.”

Project Physically Completion, CW450 – This is the date where the contractor has completed all of the contractual requirements (to include As-Built, testing, and all items due to the customer, etc.) and all efficiencies (sic) have been corrected and final payment may be prepared.

Physical Completion, CC840 – Finish date for all physical contract work, including punch list deficiencies

Contract Physical Completion (RMS) – The date all contractor work is completed. All deficiencies/punch list items are complete. Note: Claims can be pending and this date excludes activities within government control, such as warranty inspections, CCASS evaluations, final 1354, etc.

Physical Completion – This is the data field descriptor in RMS.

Project Fiscal Completion (ML260) – The date Project fiscal completion requirements are met. Project Fiscal Completion requirements are considered met when: Release of Claims has been signed by all contractors and contractor final payments made; all unobligated design and construction funds are returned and obligations liquidated; applicable CEFMS Work Item(s) closed; Final DD Form 1354 completed and accepted by the Installation RPBO; and the CEFMS Construction-In-Progress (CIP asset account is closed by Resource Management.

Project Fiscal Completion, ML 260 (RMS) – Date all project fiscal requirements are satisfied and all remaining design and construction funding returned to customer and CEFMS Construction-In-Progress (CIP) asset account is closed by Resource Management, Scheduled and Actual date comes from P2

Risk Based Assessment of Estimated Time Growth to Establish the Original Beneficial Occupancy Date

A HQ review of MILCON and BRAC projects achieving an actual Beneficial Occupancy date in FY 2011 found the average time growth between the original contract completion date and the actual contract completion date was 94 calendar days. The average size and duration of these projects were \$16.8 million and 542 calendar days respectively. Additionally, it was found that 40% of the projects had an original BOD date occurring at or before the original contract completion date. Further investigation into the cause of the delays found the following contributions to the typical time growth: design errors and omissions (45%); user requested changes (25%); differing site conditions (15%); weather (5%); other (10%).

The risk model assumes a baseline time growth of 60 calendar days for all projects. Based on the judgment and evaluation of the risk factors by the PDT a final estimated time growth can be established. The six risk factors are Design Quality; Customer Change Requests; Contractor Quality; Differing Site Conditions; Weather; and Other Risk Factors. A risk range has been established for each category. A risk evaluation factor of 1.0 means an average level of risk. Numbers less than 1.0 reflect the risk is deemed lower than average while numbers above 1.0 reflect a higher level of risk. Once a risk factor has been established for each factor they are all multiplied serially with the 60 day base line time growth to calculate the project specific estimated time growth ($60 \times 1.1 \times 1.0 \times .95 \times 1.0 \times 1.1 \times 1.05 = 72.4$ or 75 days). The risk model will provide estimated time growth amounts that range from 30 days to 150 days, which reflects the 20th percentile and 80th percentile, respectively for FY 11 data set.

Project size and duration did not exhibit any meaningful correlation with time growth in the sample reviewed.

Baseline assumed time growth

60 Calendar Days

Design Quality – The quality of the design has the greatest impact on the project’s outcome. Factors to consider for evaluation of design quality includes the number and severity of design review, BCO and bidder comments. Was the design completed and adequately reviewed prior to advertisement? Range: 0.75 to 1.25	
User Requests – Time growth attributed to the customer is typically driven by the factors such as the organization’s stability, sensitivity to changing technologies, and extent of follow on contract actions. Range:0.90 – 1.20	
Contractor Quality – Evaluation of the construction contractor’s method of doing business. Does the contractor focus on completing the project or creating delays and impacts. Range: 0.95 – 1.25	
Differing Site Conditions – Evaluation of the level of risk related to the unknown or mischaracterized aspects of the project site, complexity of foundations, and previous experience working in the geographic area Range: 0.90 – 1.15	
Weather – The time of year the project is being awarded and the susceptibility of the site to prolonged impacts due adverse weather, which would be beyond t indicated in the contract. Range: 0.95 – 1.05	
Other risk factors such as status of environmental permits, utility agreements, site access, management staff, reasonableness of base schedule, etc. Range 0.90 – 1.10	

Anticipated Time Growth = 60 calendar days x Design Factor x User Factor x Contractor Factor x Site Factor x Weather Factor x Other Factor

Anticipated Time Growth = 60 x ____ x ____ x ____ x ____ x ____ x ____ = _____ Days

Enclosure 2

Below find a best practice with respect to identifying the anticipated time growth in a current P2 schedule using the existing methodologies tasks and tweaking the logic.

42	61000 - Construction - Contract		
43	C0100 - Contract Award	4,34	
44	C0110 - Construction NTP Acknowledge	43	
45	C0115 - Construction Start	44	
49	C0160 - Design During Construction	44	
46	C0120 - Construction	45	
47	Anticipated Time Growth	46	
52	C0170 - Construction Completion	47	
56	C0200 - Beneficial Occupancy Date	47	
58	C0204 - Effective Date		
59	C0205 - Initial Transfer Document Date	56	
48	C0130 - Supervision & Administration	44SS,67FF	
53	C0180 - Resolve Deficiencies Complete Punch List Items	56,59	
55	C0195 - Customer Turnover Activities	56,59	
57	C0202 - Troop Ready Date	55	
54	C0190 - Physical Completion	53,55	
60	C0210 - AE Evaluation Date	54,62FF	
61	C0220 - Contractor Evaluation Date	54,62FF	
62	C0230 - Contractor Final Payment	54FS+60 days	
63	C0235 - Prepare Final DD1354	62	
64	C0240 - Final Transfer Document Date	63	