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ACQUISITION,
TECHNOLOGY
AND LOGISTICS

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INFO MEMO

FOR: PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE (AT&L)

FROM: GARY R. BLISS, DIRECTOR, PERFORMANCE ASSESSMENTS AND ROOT CAUSE ANALYSES (PARCA) 13 OCT 2011

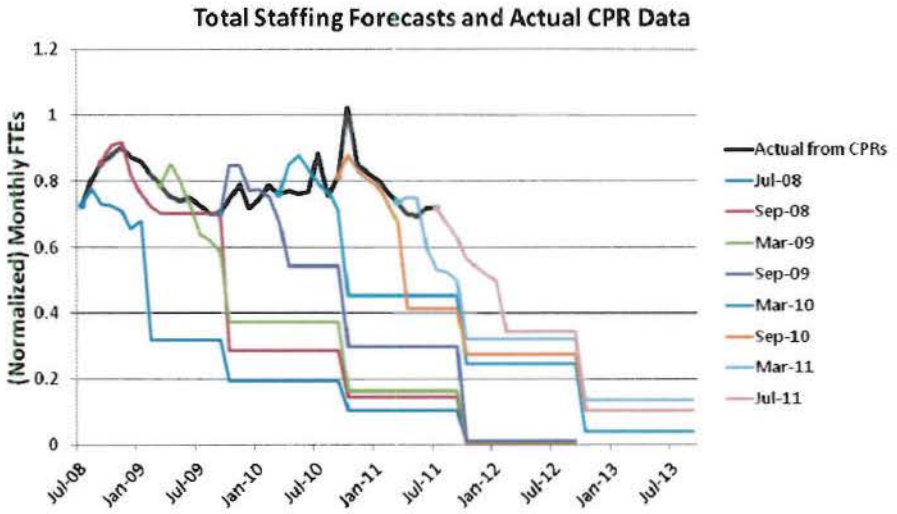
SUBJECT: PARCA's Root Cause Analysis of the Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) Program

- This memo responds to your request that PARCA perform a root cause analysis of the cost growth in the FAB-T program. A comparison of the CAPE's July, 2011 estimate and the current (2007) baseline indicates a Program Acquisition Unit Cost (PAUC) increase of 25.1%. This is mostly due to a 63% increase in development costs since 2007. Program office estimates for development cost growth is somewhat less at 51% (a 19% PAUC increase).

- The primary root cause of the development cost growth is poor contractor and government performance. This accounted for about $490M of cost growth since 2007. Another $140M of cost growth was due to exogenous requirements changes

  - This poor performance has manifested itself as the continually revised schedules displayed in the chart below. Since 2008, the contractor has projected that manning would increase for the next few months and then ramp down.

  - This slipping schedule rendered the incentive strategy ineffective since that strategy was largely based on meeting schedule milestones.



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- Specific areas where contractor and government performance were poor include:
    - Government and contractor project management which did not account for predictable consequences of decisions. Concurrency between Block 6 and Block 8 development was increased, with the concurrence of oversight, in 2008 to maintain schedule. However, the consequences of this decision were not properly anticipated e.g. repeated testing and competing demands for test strings and specific expertise.
    - Unrealistic contractor schedule planning.
        - Integration complexity was not properly accounted for. Data was available from Lincoln Labs which indicated Extended Data Rate waveform (XDR) development was significantly more difficult than the Low Data Rate (LDR) waveform. Despite this warning, unexpected XDR difficulties were still cited as the primary reason for the schedule slip in FAB-T's 2009 Program Deviation Report.
        - More recently, networking for both LDR and XDR has been unexpectedly difficult as indicated by anomaly reports. Network functions can be expected to be difficult given sophisticated bandwidth management, rapidly establishing and reconfiguring networks, and increased coverage with steerable spots.
    - Government management of requirements and interfaces which did not identify significant inconsistencies and omissions after the 2007 APB. Examples include simultaneously communicating at multiple levels of security (added in ECP 35) and specifications for power use, equipment interfaces, mean repair time, and reliability (added in ECP 24)
    - Several contractor engineering mistakes which led to redesign and retesting. A specific example is the engineering design for the B-52 antenna gimbal. This design used dissimilar materials but did not properly anticipate the corrosion and thermal issues associated with their use in the B-52 environment (a Boeing aircraft).
- Several structural features made mistakes more likely or exacerbated the impact on schedule.
    - Until recently, the government leadership was relatively inexperienced and frequently rotated. The senior Electronic Systems Command manager (a lieutenant colonel until the current manager) has changed three times since 2007 not counting the deployment of one of these managers.
    - The decision making processes were slower than required. The program had a collaborative organizational structure with Integrated product Teams, the Technical Leadership Council, and the Program Leadership Council. Multiple interations to decide issues combined with infrequent meetings meant issues could take several months to resolve.
    - There has been an historical lack of an enterprise-wide view. Examples of issues include the following: a Systems Engineering Plan which was not approved until May,

2008, the lack of a contractor Chief Architect, and the failure to get binding agreements with the platforms.

- When the current baseline was established in 2007, FAB-T contract cost had already nearly quadrupled since the program was initiated in 2002. In 2007, the FAB-T program office concluded that the root causes of the cost growth included the leadership and organization not being properly structured, numerous process break-downs and reporting problems, and that Boeing did not effectively tap the terminal domain expertise.
    - The 63% growth in development cost and the issues reported here indicate that these problems were not effectively addressed by either the government or the contractor.
    - We note that there appear to have been significant initiatives taken over the last year to improve performance. These include the assignment of more experienced government and contractor personnel to the program, more energized interaction with the platforms, and changing the organization to speed decision-making.

COORDINATION: NONE

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