

REPORT: Acquisition, Project Management, and Quality Assurance

September 30, 2009

Submitted by the EMAB Acquisition and Project Management Subcommittee

Background

For FY 2009 EMAB was tasked to review the management and delivery of EM's Construction Projects and confirm whether or not the program is headed in the right direction or needs to make some adjustments in order to improve efficiency.

EMAB reviewed and discussed the topics of Acquisition and Project Management during its public meetings. The Acquisition and Project Management subcommittee, comprised of Mr. G. Brian Estes, Dr. Lawrence Papay, and Mr. David Swindle, engaged in teleconferences on August 7 and September 4 with EM senior personnel.

Findings and Observations

Deputy Assistant Secretary Jack Surash provided an update on EM acquisition initiatives, and he and team members discussed issues summarized in the following subparagraphs. The Subcommittee again commends Mr. Surash for his leadership and acquisition achievements in the face of a nearly doubling workload. Updates on issues contained in the FY 2009 subcommittee work plan follow.

EM Management and Delivery of Construction Projects

- Government Accountability Office (GAO) Observations on EM Projects
 - EM has been on GAO's High Risk List for 19 years due to overly aggressive and optimistic baselines; inadequate oversight of project execution performance; insufficient use of project management discipline in project performance assessment; and an inadequate project management skill base in staffing.
 - EM is taking action to remove itself from the GAO High Risk List and is working to implement the recommendations contained in the GAO Cost Estimating and Assessment Guide (March 2009) that pertain to the integration of Earned Value and Risk Management data for assessing project performance.
 - EM has initiated construction project reviews modeled after those performed by the Office of Science.
- Senior management issued a memorandum on June 5 directing EM to restructure its portfolio and categorize its projects as either Capital Asset Projects (to include construction and cleanup projects), Operational Activities and Programs (to include non-capital asset activities such as operations, programs, landlord activities, and site services), or American Recovery and Reinvestment Act (ARRA) Projects.
 - Many of EM's current projects are too big, involving millions if not billions of dollars and broadly defined scope.
 - The object of this restructuring is to divide activities into better-defined projects that are smaller and shorter in duration. This process will help EM clearly separate capital asset projects from non-capital asset services.

- In the future, instead of having one large remediation project worth \$1 billion, EM may have five separate remediation projects worth a couple hundred million each.
- Modifying EM's approach to categorization will also help better align projects with DOE Order 413.3A, provide an enhanced ability to tailor project management activities, create more manageable discrete blocks of work while still tracking life-cycle costs, and break work into consistent categories.
- Ideally, EM would like to have its portfolio projectized by the end of the year.
- EM is focusing on five key areas to improve project management. They include:
 - Enhanced project management and federal oversight (a.k.a. owner representative)
 - Restructuring the EM portfolio (including acquisition strategy, scope flexibility, and splitting extremely large projects into manageable pieces)
 - Improved reporting (evaluate current reporting needs and methods, and implement better methods for the future)
 - Improved headquarters (HQ) and field interaction with better communication
 - Beginning construction only after 90% of design
 - Additional actions taken to improve performance include:
 - Identifying safety requirements early and incorporating them into design
 - Completing more design before construction (i.e. moving away from design/build for some projects)
 - This action is directed toward EM's more complex construction projects that are first-of-a-kind. There is often too much uncertainty for EM to lock itself into a performance baseline with scope, costs, and schedules based on an immature design that is below 70-90% complete.
 - Improving Quality Assurance (to include vendors)
 - Implementing improved corporate project reviews
 - Improving staff capabilities in key areas
 - Considering owner representative approach to project management
 - Implementing integrated project analysis capabilities
- As part of its integrated project analysis effort, EM has identified five key areas that affect the health of a project: 1) baseline development; 2) schedule performance; 3) cost performance; 4) risk management; and 5) project management skills staffing.
- EM is also working to improve its performance baseline development and management through tools and methods such as technology readiness assessments, risk assessments and planning, Monte Carlo simulations, stringent performance baseline estimates with at least 80% confidence levels, calculation of contingency and management reserve, and the Construction Industry Institute's Project Definition Rating Index.
- EM contingency and management reserve
 - EM recently issued a memorandum to clarify its Contractor Management Reserve policy. This memorandum will be followed by the issuance of an EM Contingency Guide that aligns with the new EM Projects Business Model Framework for Capital Asset (Construction and Cleanup) Projects.
 - Contingency for capital asset projects is determined using risk-based Monte Carlo cost and schedule models with at least an 80% confidence level.
- Improving performance oversight and project assessment
 - EM has undertaken a number of actions to improve its performance oversight and project assessments, including: ensuring 90% design completion before the start of construction;

monthly assessments and quarterly project reviews with the field; HQ participation in Federal Project Director (FPD) and contractor monthly progress review meetings; and integrated project analysis capability for improving project assessment.

- EM Project Management Information System (PMIS)
 - PMIS is a desktop application database and information system that EM intends to implement for all major construction projects by September 30, 2009.
 - This project performance assessment tool will enhance EM's project reporting, analyses, and forecasting.
 - EM plans to move to a web-based performance assessment tool by early next year that will be rolled in with Primavera and other applications to allow for integrated project analyses, as recommended by GAO.
 - EM is also implementing the Decker Earned Value Management System (EVMS) analysis tool for construction projects to provide FPDs and project staff with the ability to quickly analyze the cost and schedule implications of a project using EVMS techniques.
 - One particularly advantageous feature of this tool is that it can extract data (ex: cost and schedule information) directly from the contractor's database to analyze and interpret the results.
 - Since many of the contractors use different EVMS and scheduling systems, the Decker application will require a custom interface. However, there are also a number of data exchange standards that contractors must comply with that ease this process. (In the future, EM and/or DOE may need to explore a national standard for data exchange systems).
 - The subcommittee expressed some concern that EM may run into contractual challenges as it attempts to gain access to the contractors' data sets. Although EM feels that it owns the data, those contractors not operating onsite may store information that is not releasable in the very databases that Decker will be used to access.
- EM has also been directed to ensure that its contractors obtain EVMS certification and is currently exceeding the DOE goals of 85% certified for construction projects and 65% certified for cleanup projects.
- EM continues to focus on improving its project management skill sets and staffing through EVMS and FPD certification programs, contractor performance reporting, and supplementing the federal staff with skill-based support contractors.
 - The staff for the Office of Project Management Oversight (EM-53) has been augmented with technical and subject matter expert support contractors from Project Time & Cost, Inc. (PT&C).
 - These contractors provide EM with expertise, in-depth experience, and institutional knowledge in the areas of project and baseline management, integrated project analysis, project controls, and risk and contingency management.
 - They are also a key resource for supporting and collaborating with FPDs, Integrated Project Teams (IPTs), and HQ Site Leads on project analyses, reviews, and management reporting.
 - EM is also holding weekly mentoring round table discussions for project management staff.

Timely Contract Modification and Change Process

- Most ARRA work is being accomplished through modifications to existing contracts. The huge increase in workload and high visibility of the ARRA work is producing a side benefit of encouraging the DOE Procurement and General Counsel's offices to work as a project team to improve the timeliness of business clearances and ultimately the execution of contract modifications. Templates have been prepared and a significant amount of overtime is being used to streamline the process.
- In order to ensure that EM's acquisition systems are not overwhelmed by the ARRA workload, the Office of Procurement Planning (EM-51) has continued to monitor the progress of core base program projects through regular communication with Source Evaluation Board Chairs. This communication includes weekly conference calls to discuss current status updates and any potential issues that may arise six to eight weeks down the road.

Personnel Needs, Training, and Certification

- DOE is still dealing with a department-wide freeze on Senior Executive Service (SES) positions. Some SES slots have been released for recruitment, but there is no clear process for how to obtain exceptions to the freeze. EM has had no relief.
- According to the proposed EM reorganization, EM-50's roles and responsibilities have been divided three ways and assigned to different Deputy Assistant Secretary (DAS) organizations.
 - The functions currently performed by EM-53 will be absorbed by the new DAS for Project Management that will report to the Chief Technical Officer (EM-3).
 - The functions currently performed by EM-51 and the Office of Contract and Project Execution (EM-52) will be absorbed by the DAS for Acquisition and Contract Management that reports to the Chief Business Officer (EM-4).
- The revised organization chart also indicates that there are plans to delegate Head of Contracting Authority (HCA) to the EM Consolidated Business Center (CBC).
 - This decision is not final and the topic is certainly worth further exploration.
 - Four years ago EM moved from a decentralized acquisition authority to a centralized HCA at EM HQ in order to address the challenges that were overwhelming the sites.
 - A decentralized HCA can be just as effective as a centralized HCA, but EM needs to ensure that the lessons learned from EM's previous difficulties are applied to avoid repeating the mistakes of the past.
- ARRA has not yet significantly impacted EM-50 hiring. The numbers are small and position grades have been attractive to well-qualified personnel thus far.

EM Current Acquisition and Project Management Issues and Areas of Focus

- EM is striving to establish consistency across its procurements with regard to operations and support and has published a draft Request for Proposal (RFP) performance work statement that was circulated among industry partners for comment. The goal is to develop a more standardized format for procurement evaluation factors based on the draft RFP comments.
 - The comments will also be analyzed for cross-cutting themes that can be applied more generally to EM's procurement practices.

- Representatives from EM-51 work with the sites to prepare procurement reporting materials and packages (ex: RFPs, acquisition plans, source plans, SEB reports) before they are sent to HQ for review in order to build quality into the report products and integrate lessons learned.
- With regard to the operational side of the acquisition process, EM has started applying lean management principles and focusing on the interpersonal relationships occurring on the team in order to improve acquisition and institute a continuous learning mechanism. The CBC is spearheading this initiative and will select projects for its application.
- EM is working toward a facilitator/coach relationship with the field staff rather than policing the sites. Additionally, EM-50 is preparing an acquisition plan with templates and examples to help the field improve the quality of their reporting products and apply those standards to their independent review functions.

QA Headquarters and Field Roles

- Mr. James Fiore, Office of Management Analysis, has sent out a request for people to rearticulate functions between HQ and the Field. That document is under development to reflect the pending reorganization.
 - Input for HQ functions and drivers has been submitted and cross checked with a side-by-side list of the field functions.
- The Office of Safety Management and Operations (EM-60) tracks and surveys contractor and federal employees to determine the level of Quality Assurance/Quality Control (QA/QC) resources. EM-60 also tracks resources throughout the complex along with training qualifications, matching them against industry standards.
- EM-60 and the EM Principal Deputy Assistant Secretary, Mr. Dae Chung, have reinstated weekly site managers' call, which features a time slot for discussions of safety and QA.
 - As an example, in the most recent QA call, Dr. Steve Krahn reviewed challenges associated with commercial grade dedication and how those challenges existed at each site. At the end of the call, Dr. Krahn committed to developing guidance and lessons learned memoranda to share with EM. He is satisfied with the support he has received from senior management.
- EM-60 established a QA Corporate Board in March 2008
 - The Corporate Board has met five times and includes members from EM-HQ, federal site staff, and high-level contractor personnel.
 - With regard to acquisition, the Corporate Board developed standard QA contract language for RFPs. The previous QA language for RFPs was not specific enough in identifying vendor/supplier site access requirements for field inspections by either the prime contractor or DOE's programmatic personnel; when finalized, the new standards will be issued across the complex.
 - Feedback was integrated into the graded approach paper and approved during the recent QA Corporate Board meeting. The final paper will be issued by EM-60 as guidance for a one-year period with the expectation that comments will be received from the field during that time period.
- Questions about the relationship between a "Graded Approach" and the recommendation that 5% of the EM workforce be a part of QA activities
 - The 5% target is a discussion number used at Corporate Board meetings to discuss the approximate number of QA people needed for complex, high level facilities.

- The 5% figure does not necessarily apply to non-nuclear or radiological facilities. Some facilities may require more than the 5%, others less.
- The 5% figure was provided to the QA Corporate Board as a rule of thumb to use in organizations which encompass a broad spectrum of risk.
- It was not EM's intent to require that each and every contractor have a 5% level of QA representation.
- EM-60 worked very closely with the Energy Facilities Contractors Group (EFCOG) Executive Committee and created five general focus areas for the Corporate Board in FY 2010. These five areas include:
 - Lack of Adequate NQA-1 Suppliers
 - Requirements Flow Down (horizontally/vertically, feds/contractors)
 - Federal Understanding of QA/Oversight (FPDs, IPTs) and Line Management Accountability
 - Commercial Grade Dedication and Implementation
 - Graded Approach Implementation
 - A survey was conducted across the complex to identify inconsistencies with the graded approach. It concluded that there needs to be clear and consistent expectations in the preparation of RFPs.
 - EM needs to establish minimum expectations for appropriate QA levels for review and approval, supplier acceptance, and monitoring.

QA Audits

- Since January 2008 a major function of EM-60 has been conducting EM audits and assessments of sites and major contractors.
- There are roughly 21 audits and surveillance reviews conducted per year.
- Radioactive Waste, High-Level Waste and Spent Nuclear Fuel audits are performed at major sites.
- Subject matter experts perform conduct of operations reviews. They examine the QA aspects, but are also involved in external technical reviews and technical readiness assessments led by the Office of Engineering and Technology.
- The shift from compliance-based audits to performance-based audits began in FY 2009. The main goal is to have more than a QA checklist to accompany programs and procedures.
- There is a big focus on vendors in FY 2010. The Vendor Shop Initiative is where EM-60 performs audits of vendor shops and requires FPDs at construction projects to install fulltime QA/QC specialists.
 - Outreach and training efforts include small businesses and working closely with the FPDs of construction projects to address to the supply chain in its entirety.
- A corrective action program was recently established with HQ for audits. It allows EM-60 to track and monitor whether corrective action plans have been completed. A web-based system was developed for the sites to access management reporting and analysis for all audits, reviews, and surveillances.

Qualified Nuclear Suppliers

- There were two supplier events in the past year where EM reached out to suppliers to talk about the work scope of the program, market segments, what is coming up in the future, and completing work scope within cost, schedule, and quality expectations.
- EM-60 held the first training workshop for small business suppliers in Augusta, GA and also held training classes for suppliers in conjunction with Nuclear Energy Institute workshops that are held 3-4 times per year.

Personnel Needs, Training, and Certification

- EM-60 is bringing two new employees on board, one of which will begin work in FY 2010.
- EM-60 also initiated a centralized training platform to conduct NQA-1 and DOE order 414.1c training for both federal employees and contractors. Four-hour and 40 hour courses for suppliers as well as courses for FPDs and IPTs have also been developed.
 - Many of these courses are open to the EM Professional Development Corps and Florida International University fellows as well.
- There is hope that within the next two years, QA certificate programs will be established at community colleges.
- In the fall, EM-60 wants to hold a vendor workshop for strategic planning that addresses suppliers and areas for improvement.
- Appropriateness of EM-60 staffing levels to deal with ARRA work
 - Two new hires have been added in the QA field in the fourth quarter of FY 2009.
 - New hires will spend half of their time on the QA portions of EM's ARRA work.
 - Execution of the ARRA projects should be monitored by the HQ Corporate Board to determine if any QA issues are observed.
 - In a letter dated February 25, 2009, the Assistant Secretary emphasized the importance of proper pre-planning of ARRA projects, to include integration of safety and quality into planning activities.
 - As a part of the readiness assessment of ARRA work, teams are evaluating the project plans and consulting with site offices to ensure they have adequate staffing.

EM Current QA Issues and Areas of Focus

- EM-50 and EM-60 are working together to implement improvements for contracting processes. There are a lot of challenges to be addressed that stem from the need to sufficiently identify QA requirements during the procurement process; QA, acquisition, and engineering considerations need to be better integrated.
- There is controversy about access to the vendor shop floors by prime contractors and federal employees. Prime contractors often need to be escorted, and federal employees cannot gain access. There are inconsistencies about which vendor shops let people stop by and which require escorts.

QA Program Planning and Integrating QA into the EM Work Culture

- QA should become a part of the EM culture, just as safety currently is. In this regard, EM-60 is attempting to keep QA as a main topic for the Assistant Secretary's consideration and will continue to use the QA Corporate Board to raise and discuss any issues or concerns.

Recommendations

To further aid the Assistant Secretary in her efforts to improve EM's acquisition and project management practices, the Acquisition and Project Management Subcommittee offers the following recommendations:

Recommendation 2009-15: EM should clearly identify the actions that will be taken to compensate for any loss of synergy across contracting and project management functions in light of the program's proposed reorganization.

This recommendation pertains to the proposed EM reorganization which includes the division and realignment of the program's contracting and project management functions under two separate Deputy Assistant Secretary organizations. It is important that the improvements EM has achieved in its acquisition and project management processes over the past several years not be lost or diminished.

Recommendation 2009-16: EM should ensure that the proposed separation of contracting and project management functions is consistent with the National Academy of Public Administration's 2007 report and recommendations, or that the reasons for deviation from the report and recommendations are documented.

Recommendation 2009-17: EM should ensure that the charter for Quality Assurance clearly provides for direct access to the Assistant Secretary for QA reporting functions, without requiring that information first be routed through indirect reporting chains (i.e. Deputy Assistant Secretary or Chief Operations Officer organizations).

Recommendation 2009-18: EM should direct the QA Corporate Board to investigate the development of metrics and leading indicators for potential problems or shortfalls within the program's QA functions.