

2017

FY 13-17 EMCBC
Annual Performance Report
Office of Cost Estimating



U.S. Department of Energy
Environmental Management
Consolidated Business Center
5/19/2017

EMCBC Office of Cost Estimating (OCE)

The mission of the Office of Environmental Management (EM) is the accelerated risk reduction and cleanup of the environmental legacy of the nation's nuclear weapons program and government-sponsored nuclear energy research. The program is one of the largest, diverse and technically complex environmental cleanup programs in the world and includes responsibility for the cleanup of 114 sites across the country. The EM Consolidated Business Center (EMCBC) provides essential business and technical services for EM closure and field sites leading up to, during, and after physical site closure. The EMCBC provides key business and technical functions that include human resource management, information management, legal services, procurement, financial management, logistics, closure cadre support, and EM-wide cost estimating and analysis services.

EM's mission has been transformed from a program that indefinitely managed risk associated with the Nation's weapons production program to a well-defined project that accelerates risk reduction with clear cost, scope, schedules and project controls as the program transitioned to cleaning up the legacy of the weapons program. With the completion of a comprehensive, complex-wide review ordered by the Secretary of Energy, the estimated cost of the cleanup program decreased by over \$30 billion and the time to complete cleanup will be shortened by 35 years, eliminating risks to our workers, our communities, and the environment a generation earlier than previously planned. Accomplishment of EM's transformation requires driving greater clarity and predictability from federal business systems and greater accountability for federal managers and employees.

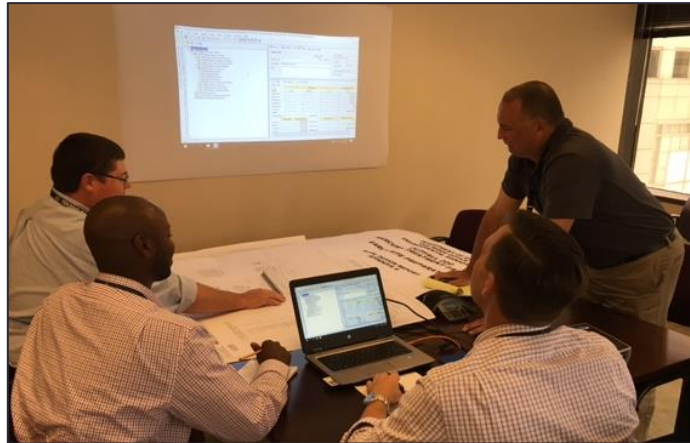
The mission of the EMCBC Office of Cost Estimating is to fully integrate sound cost estimating practices into all of EM's acquisition and project management processes by establishing EM corporate cost estimating requirements and providing oversight for contractor-developed cost estimates, preparing independent government cost estimates (IGCEs) to support EM acquisition and contract management efforts, preparing independent cost estimates to support EM project planning and execution needs, performing independent cost reviews and independent project reviews (ICRs and IPRs) of contractor-developed cost estimates, supporting risk management planning activities, and expanding our role in EM's life-cycle planning processes to facilitate development of environmental liability estimates. This office also serves support the execution of the EM Cleanup Program, improve the overall success of EM's cleanup projects by establishing standards and templates, providing project support through mentoring and resources, and by supporting the planning and execution of strategic, high risk, high cost, and complex EM clean-up and closure projects.

The mission of the EMCBC Office of Cost Estimating (OCE) is to integrate sound cost estimating practices into all of EM's acquisition and project management processes by establishing EM Corporate cost review and estimating requirements. The OCE has established policies and

procedures that in-grain the recommended steps to producing high quality estimates from the GAO Cost Estimating & Assessment Guide.

Cost Estimating Services Provided to Support EM's Cleanup Program

Cost and schedule estimators in the OCE are responsible for preparing life-cycle cost and schedule estimates and analyses associated with the cleanup of millions of gallons of liquid high-level radioactive waste, thousands of tons of spent (used) nuclear fuel and special nuclear material, the disposition of large volumes of transuranic and mixed/low-level waste, significant quantities of contaminated soil and contaminated water, deactivation and decommissioning of thousands of excess nuclear facilities, and supporting innovative technology development in an effort to make key strategic investments that reduce risk, reduce life-cycle costs, and expedite site closures.



This requires the effective application of professional, technical, and engineering expertise that is used in the application of scientific principles and techniques to problems of estimation; cost control; business planning and management science; profitability analysis; project management; and planning and scheduling. Cost estimating within EM requires a systematic approach to managing cost throughout the life-cycle of any enterprise, program, facility, project, product or service. This is accomplished through the application of cost engineering and cost management principles, engineering practice where engineering judgment and experience are utilized in the application of scientific principles and techniques to problems of business and program planning; cost estimating; economic and financial analysis; cost engineering; program and project management; planning and scheduling; risk analysis and planning; and cost and schedule performance measurement and change control.

The OCE supports the EM Cleanup program by:

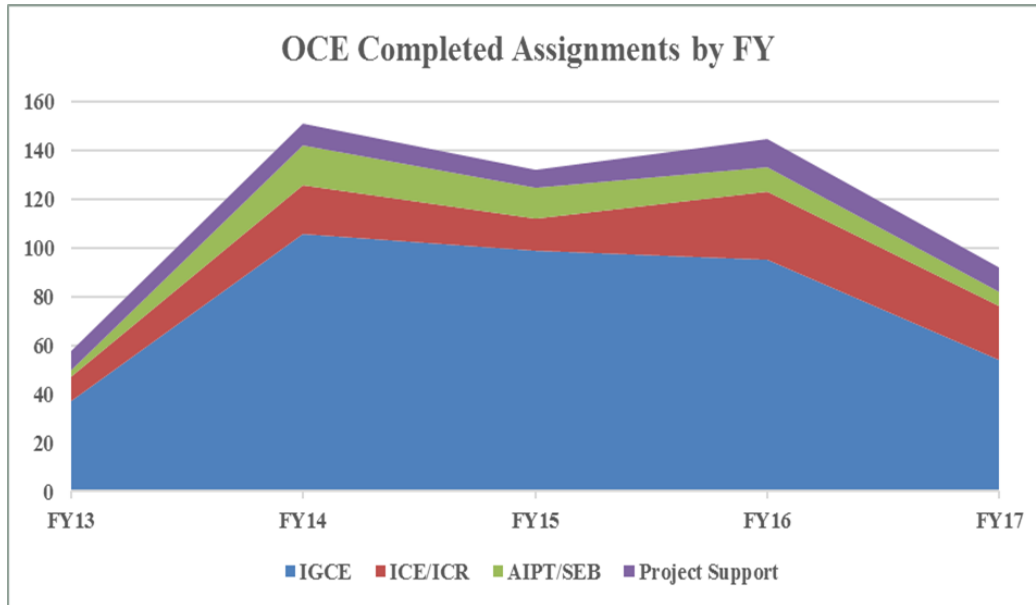
- **Developing & Implementing EM's Corporate Cost Estimating & Analysis Program**
 - Establishing policy, standards, and procedures to assure EM cost and schedule estimates are accurate, traceable, and reliable.
 - Leading development and management of cost and schedule databases, methodologies, and tools needed by EM to improve and standardize its cost estimating and analysis capabilities.

- **Supporting Acquisition and Contract Management**
 - Providing cost engineering subject matter expertise support to Acquisition-related Source Evaluation Boards or Contracting Officers.
 - Preparing Independent Government Estimates (IGCE) for new acquisitions and contract administration actions.
 - Supporting the Technical Evaluation of Cost (TEC) of contractor-submitted proposals.
 - Providing Independent Cost Review (ICR) and or analysis of contractor proposals.

- **Supporting Project Management Planning & Execution Support for execution of the EM Cleanup Program**
 - Supporting site managers, Project Management Executives (PMEs) and Federal Project Directors (FPDs) by providing Cost Estimating and Analysis Subject Matter Expertise (SME) to EM Integrated Project Teams.
 - Supporting EM projects, programs and Operating Activities (OAs) by preparing Independent Cost Estimates (ICEs) and/or perform Independent Cost Reviews (ICRs).
 - Perform life-cycle cost analyses and support development and management of project-specific or Site-wide Life-cycle Baselines.
 - Support risk management planning activities and conduct risk analysis modeling.
 - Provide Cost Estimating and Analysis SME in support of ICE/ICRs, IPR's, EIRs and PPR's.

The OCE, established at the EMCBC in 2007, was fully staffed by the end of 2008. From FY09 through FY13 the OCE completed, on average, approximately 75- estimating and/or cost analysis assignments in support of the EM cleanup program. With the successful implementation of the EM corporate cost estimating program, the EM complex looked more and more to the OCE for Cost Estimating SMEs. From FY07 into FY13, Contracting Officers requested IGCEs as needed to support procurement activities. Midway through FY13, the EM Head of Contracting Activity issued an IGCE policy mandating that IGCEs for all procurement actions that would exceed \$150,000 in value. EM also established policy that required regular project peer reviews for Capital Asset Projects (CAPs) and in FY12, the EMCBC assumed line management authority over the EM “small” sites, now EMCBC Field Sites. This also required the establishment of a Project Management Support Office (PMSO) at the EMCBC. These policies resulted in a dramatic increase in the number of assignments acquisition and project management assignments completed each year. Since FY14, the OCE has averaged over 140 cost estimating and/or analysis assignments. Roughly 65% of these assignments have supported procurement actions (IGCEs, AIPT/SEB, and ICE/ICRs), and 35% supporting project and program execution (PPR, IPR, EIR and ICE/ICRs.).

EM implemented a Human Capital initiative in FY14 that would result in adding over 100 Federal Employees in key disciplines. This initiative included adding 20 Cost Estimators across the EM complex including 7 in the OCE. In addition, OCE assume the lead as the EM Center of Excellence for Cost Estimating. In this capacity, the OCE supported development of standard position descriptions, sponsored training in the use of specialized estimating software (MII, RACER, etc.), and maintains an on-going cost estimating community of practice via the Applied Cost Engineering (ACE) team.



Note 1: Accomplishments for FY13-FY17 are shown above

Note 2: FY17 represents completion of 92 assignments through May 15, 2017.

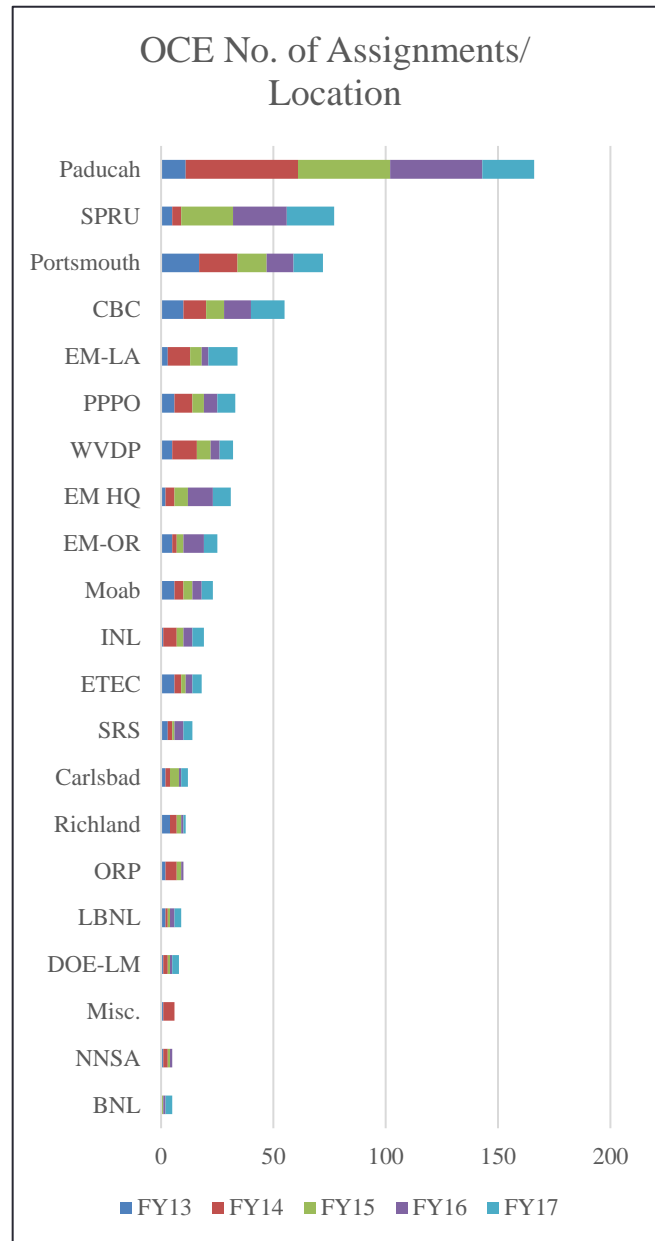
NOTABLE ACCOMPLISHMENTS:

Since its inception, the OCE has provided cost estimating and analysis services to virtually all EM sites, including closed sites at Mound, Fernald, Rocky Flats, and Oak Ridge-Melton Valley; Supported EM HQ and the US State Department regarding legacy cleanup in Europe; and other DOE Agencies and offices (NNSA, Science, Legacy Management, etc.).

The OCE has completed nearly 1000 cost estimating, analysis and review assignments, exceeding \$80-billion in value. The following chart shows the number and distribution of these assignments since FY13. These included IGCEs for all new award acquisitions completed by the EMCBC OOC, Life-Cycle baseline (LCB) updates for EM-LA and Moab; deep dive analysis of LCBs for Paducah and Portsmouth at the request of S-1, and numerous project/ program tasks.

The following “hi-lites” some of OCE’s notable accomplishments:

- From October 1, 2013 through May 15, 2017 the OCE completed over 580 cost estimating and/or analysis assignments in support of the EM Cleanup Mission and other DOE agencies.
- The OCE published EM’s Cost Estimate Development Handbook to provide uniform guidance and best practices for use when preparing cost estimates prepared to support EM acquisition needs and EM cleanup projects.
- The OCE developed the Environmental Cost Analysis System (ECAS), the only historical cost capture database available in the DOE, which currently has 278-EM projects with the number growing each year. Data from ECAS was used to develop cost estimating relationships to support environmental liability estimates for the CFO’s office; and by EM HQ in developing cost models for the excess facilities program.
- The OCE supported EM HQ and the US State Department by developing three rough order of magnitude (ROM) estimates for various cleanup scenarios for the Palomares, Spain Site, based on a study completed by the Spanish Government. This included excavation and remediation of a B-52 crash site, transportation and disposal at NTSS. These estimates led to development of preliminary project planning scenarios, subsequently during discussions between the US State Department and the Spanish Government.
- The OCE Hosted a workshop for EM Applied Cost Engineering (ACE) Team to promote continuous cost engineering improvements through the dissemination of cost engineering tools, methods, techniques, best practices and lessons-learned across the EM complex in FY14 and FY15.
- The OCE developed and published EM’s Independent Cost (Estimate) Review Guide to provide uniform guidance and best practices for use when reviewing cost estimates prepared to support EM cleanup programs and projects.



- Greater than 90% of IGCEs developed to support new acquisition have been with 15% of awarded contract values.
- The OCE supported DOE and EM-HQ directed “Deep-dive” project/program reviews for the West Valley Demonstration Project (WVDP), Separations Process Research Unit (SPRU), Paducah Gaseous Diffusion Plant (PGDP), and PPPO, DUF6.

Recent notable accomplishments in FY16 and FY17 (through May 15th) include:

- The DOE IG initiated an “Audit of Cost Estimating within the Department’s Office of Environmental Management” in November of 2016. The objective of the audit was to determine whether cost estimates produced by the Department’s Office of Environmental Management met their project and program management support objectives. In May, the audit was terminated finding no areas of concern.
- The OCE completed 95 IGCEs to support acquisition and contract management actions affiliated with the EMCBC, EM Field Operations, LANL, ORP, and the PPPO including EM’s Portsmouth and Paducah Sites in FY16 with a total value of these IGCE’s over \$7-billion. There were 54 IGCEs completed in FY17, with another 27-IGCEs in progress.
- The OCE Continued to promote the EMCBC Cost Estimating Center of Excellence by sponsoring MII Software, and RACER training to EM estimators complex wide.
- The OCE developed an on-line data entry tool to facilitate collecting additional project data throughout the EM complex and this tool was used to collect data on over 50 ECAS projects.
- The OCE completed 28 ICE/ICRs of contractor-developed cost estimates to support EM independent validation and approval requirements in FY16, and another 22 in FY 17 through May 15th.
- The OCE provide cost estimating subject matter support to 10 Acquisition Integrated Project Teams (AIPTs) and subsequent Source Evaluation Boards (SEBs) in F16, another 6 in FY17 through May 15th, with another 13 AIPT/SEB actions in progress.
- The OCE continued to provide cost estimating subject matter expertise to support project reviews in support of PM-10, PM-20 and the EM Project Assessment Office (formerly EM-53 now EM-5.22) on 12-PPRs, IPRs, and other project support tasks.
- The OCE implemented full risk analysis support, including running Monte Analyses, in the Office of Cost Estimating to EMCBC Field sites, and EM projects around the EM complex.
- The OCE led the development of the EMCBC’s environmental liability estimates in support of the CFO’s office in FY16 and 17.
- The OCE acted as the EM lead to collect and report POAM Goal 2-“Reduce Operating Cost for FY16.” Included collecting input from Idaho, Paducah, Portsmouth, Oak Ridge, SRS, and Hanford. Total savings reported in FY16 was over \$100-million.
- The OCE supported and completed organizational change to move the Project Management Support Division under the Office of Technical Assistance and Asset Management.
- The OCE supported the EMCBC Field Sites by providing Staff Detail for the EMCBC Senior Technical Advisor throughout FY16.
- The OCE provided subject matter expertise to support COR activities at SPRU, and assume COR activities at MOAB.