Environmental Cost Element Structure (ECES) and Annual Update

by

Bryan Skokan

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ECES History

- The ACE Team was formed in April 1996 as a result of a Field Office personnel needing comparable cost data in an effort to evaluate cost and scope data submitted by contractor.
- Upon attempting to obtain similar data, it was recognized that:
  - Within Field Offices & across the EM complex, some accounting & program management systems made it difficult to track or manage project cost & progress in a structured manner
  - Within the EM program, there was no standardized method or guidance on what cost data should be collected, to what level of detail, or how to collect and maintain the data
  - As a result, information collected by Field Offices could not be readily used by other sites

WHAT IS ECES?

- ECES is a standardized work and cost breakdown structure for all life-cycle phases of environmental projects.

- ECES was developed by the Interagency Environmental Cost Engineering Committee (EC^2) through an iterative process involving Federal Agencies and the private sector.

- ECES evolved from the Hazardous, Toxic, and Radioactive Waste Work Breakdown Structure (HTRW WBS), first developed in 1994 to improve cost management among Federal Agencies.

- ECES includes cost elements for all Environmental work: new & baseline technologies, Environmental Restoration (ER), Waste Management (WM), D&D, & other tasks.

LEVELS 1 AND 2

- Level 1 of the ECES represents the life-cycle phases of an environmental project which includes:
  - Phase 1 - Assessment
  - Phase 2 - Studies
  - Phase 3 - Design
  - Phase 4 - Construction
  - Phase 5 - Operations and Maintenance
  - Phase 6 - Surveillance and Long-Term Maintenance

  - Phase 8 - Program Management and Cross-Cut
- Level 2 represents major elements necessary to perform environmental work
- There are 34 Level 2 elements in ECES.

More Detailed Elements

- ECES Level 3 consists of more detailed elements required to perform Level 2 tasks
- Level 3 elements summarize to Level 2 elements
- Specific element definitions and cost parameters have been developed for Levels 1 to 3
- Data is required at a minimum of Level 3
- Level 4 and below have been developed for some elements, but sites have the flexibility to use their own lower level elements as long as it rolls up to the categories comparable to the Federal Remediation Technology Roundtable categories.

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EXAMPLE ON USE OF ECES

- Disposal Cell
- Remediation alternative evaluation conducted
- Include site investigation/site selection
- Construction of disposal cell
- Operation and Maintenance of disposal cell
- Post closure or long-term surveillance and maintenance

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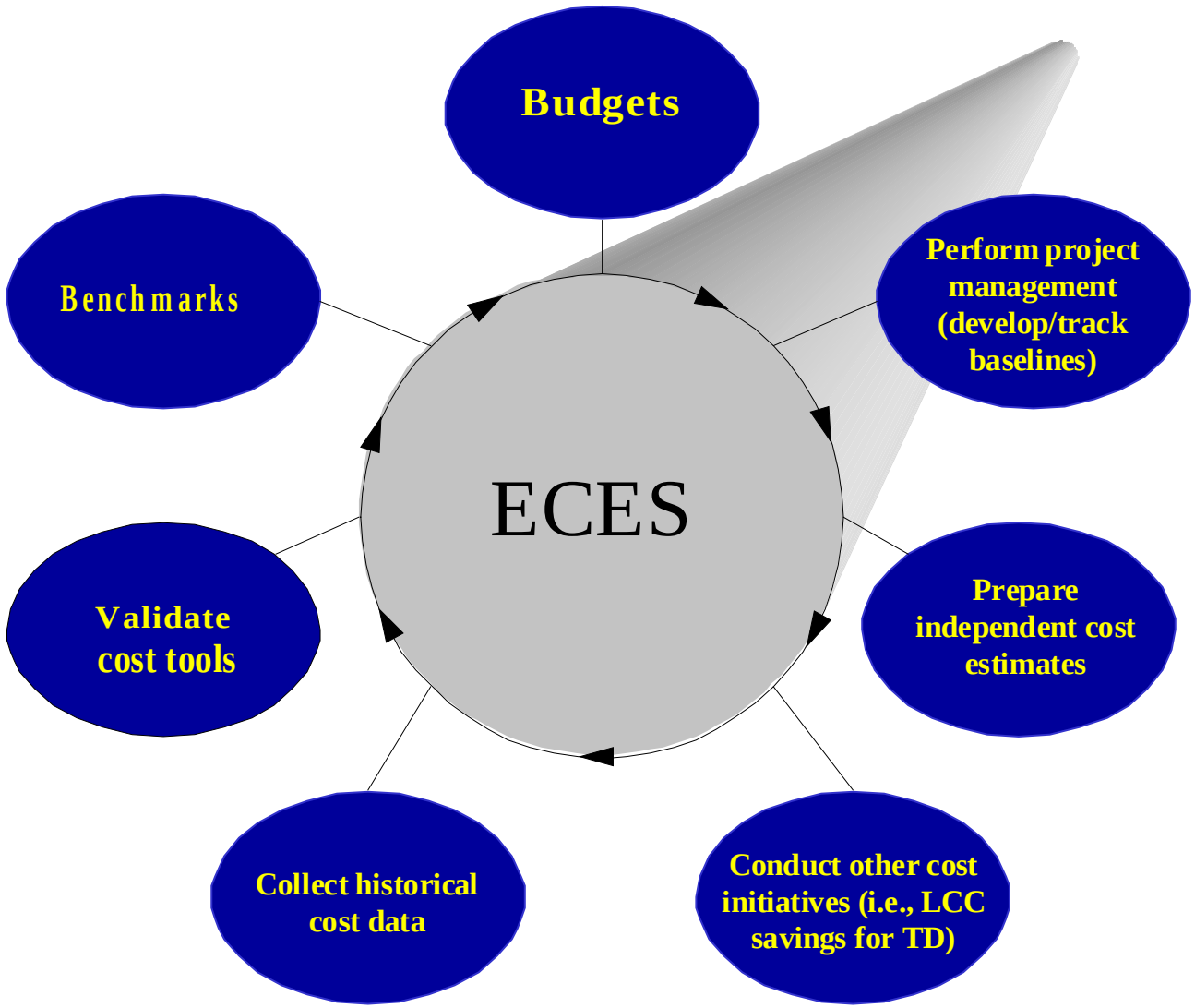
WHY USE THE ECES?

- Facilitates project planning by providing a checklist for comparing and evaluating work scope and costs in multiple proposals
- Assists in site budget integration by identifying common budget elements
- Improves efficiency of budget validations, reviews, and forecasts
- Standard structure allows for better tracking of contractor overhead, increases reliability of benchmarking data, and cost estimates
- DOE mandates the use of commercially available standards, and Federal facilities are required to adopt voluntary environmental consensus standards under:
  - ! Executive Order 12856,
  - ! Public Law 104-113, and
  - ! EPA's Code of Environmental Management Principles (CEMP).
- In July 1996, Deputy Assistant Secretary, Jim Owendoff signed a memo strongly recommending implementation of HTRW WBS (now ECES).


Budgets
Benchmarks
Perform project management (develop/track baselines)
ECES
Validate cost tools
Prepare independent cost estimates
Collect historical cost data
Conduct other cost initiatives (i.e., LCC savings for TD)

ECES Annual Update

- Because of changes in regulations, method of completing environmental projects, and advances in technologies, it was agreed that ECES should be updated annually.

- The ECES was officially published in September 1999 and posted on the ACE Team homepage.

- Since then, EC^2 has collected and compiled suggested changes and additions to the document.

ECES Annual Update (continued)

- Major issues and comments include:
  - Use of Construction Specification Institute (CSI) format and categories for clean Sitework (X.05)
  - Modifications to elements X.32 (Material Handling and Transportation) and X.33 (Disposal -Commercial)
  - Inclusion of new ER and Decontamination & Decommissioning (D&D) technologies
  - Development of generic Level 4 elements for Phase 3 & Phase 6,
  - Inclusion of level 4 elements (as appropriate) to better match HTRW WBS and OECD D&D structure
  - Realigning units of measures for some elements, and
  - Editorial/grammatical changes

☛ The following were incorporated into the year 2000 ECES revision:

- For Sitework (X.05), the updated ECES contains both the CSI format and the existing ECES format.
- Element X.32, Material Handling and Transportation, was modified to include transportation by mode (i.e., rail, car, barge, etc.) instead of by media type (i.e., liquid, solid, etc). Media type is now captured as Level 4.
- Element X.33, is renamed “Disposal” and elements associated with container handling and transportation were moved to X.32 (Material Handling and Transportation). Also, various types of disposal options (on-site, off-site, commercial, etc.) were added.

ECES Revision (continued)

- Additional ER technologies are included in the ECES update. However, techniques associated with D&D (i.e., plasma arc cutting) are included in ECES as secondary parameters.
- Updated units of measures are incorporated into new ECES as appropriate
- Most of the editorial and grammatical comments are incorporated
- Included HTRW WBS and OECD Level 4 elements into updated ECES as appropriate.
- Minor changes have been made to the document to reduce the size and volume, and for easier use.

- The following issues and comments will be considered as part of next year's update cycle:
  - Need further discussion with other Federal Agencies and organizations to define needed elements for Long-Term Surveillance and Maintenance, Long-Term Surveillance and Monitoring, or sometimes known as Long-Term Stewardship
  - Explore WM elements and technologies to be modified or included in ECES.
  - Inclusion of generic Level 4 definitions for Phases 3 (Design) and 6 (Surveillance and Long-Term Monitoring).
- Also, the ECES up to Level 2 is being balloted for adoption as an ASTM standard. Other Levels will be proposed later.

Obtaining Copies of ECES

- ECES is available on the ACE Team homepage at http://www.em.doe.gov/aceteam/eces.html
- Hard copies are also available from Bryan Skokan at 301-903-7612, Terry Brennan at 412-386-5989.