

**NATIONAL NUCLEAR SECURITY ADMINISTRATION SERVICE CENTER
ENVIRONMENTAL PROGRAMS
LONG-TERM ENVIRONMENTAL STEWARDSHIP BASELINE HANDBOOK**

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ABSTRACT

As environmental restoration (ER) projects move toward completion, the planning, integration, and documentation of long-term environmental stewardship (LTES) activities is increasingly important for ensuring smooth transition to LTES. The *Long-Term Environmental Stewardship Baseline Handbook (Handbook)* prepared by the National Nuclear Security Administration (NNSA) Service Center Environmental Programs Department (EPD) outlines approaches for integrating site-specific LTES planning and implementation into site ER baseline documentation. Since LTES will vary greatly from site to site, the *Handbook* also provides for flexibility in addressing LTES in ER Project life-cycle baselines, while clearly identifying Environmental Management (EM) requirements. It provides suggestions for enacting LTES principles and objectives through operational activities described in site-specific LTES plans and life cycle ER Project baseline scope, cost, and schedule documentation and tools for more thorough planning, better quantification, broader understanding of risk and risk management factors, and more comprehensive documentation. LTES planning applied to baselines in a phased approach will facilitate seamlessly integrating LTES into site operational activities, thereby minimizing the use of resources.

BACKGROUND

The NNSA Service Center EPD defines LTES as "... the proactive management for sustainable use and protection of natural and cultural resources affected by U.S. Department of Energy (DOE) operations and operational legacies, while ensuring the protection of human health and the environment." This definition includes activities ensuring protection of human health and the environment following ER Project closure. As ER projects move toward completion, planning, integrating, and documenting LTES activities is increasingly important. This is accomplished by managing sites through life-cycle baselines incorporating project management elements dictated by DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets* (1), including project control systems; work breakdown structure (WBS); scope, cost, and schedule estimates; and risk management.

The NNSA Service Center EPD provides information and support to site personnel for documenting and maintaining project life-cycle baselines. This support includes developing planning documents, beginning with the *Handbook for Integrated Project Management (HIPM)*, which describes planning, budgeting, executing, and reporting outputs and an overview of project management and baseline guidance based on DOE O 413.3 (2). Topic-specific project

management handbooks that have been developed to further facilitate implementing DOE O 413.3 are shown in Figure 1.

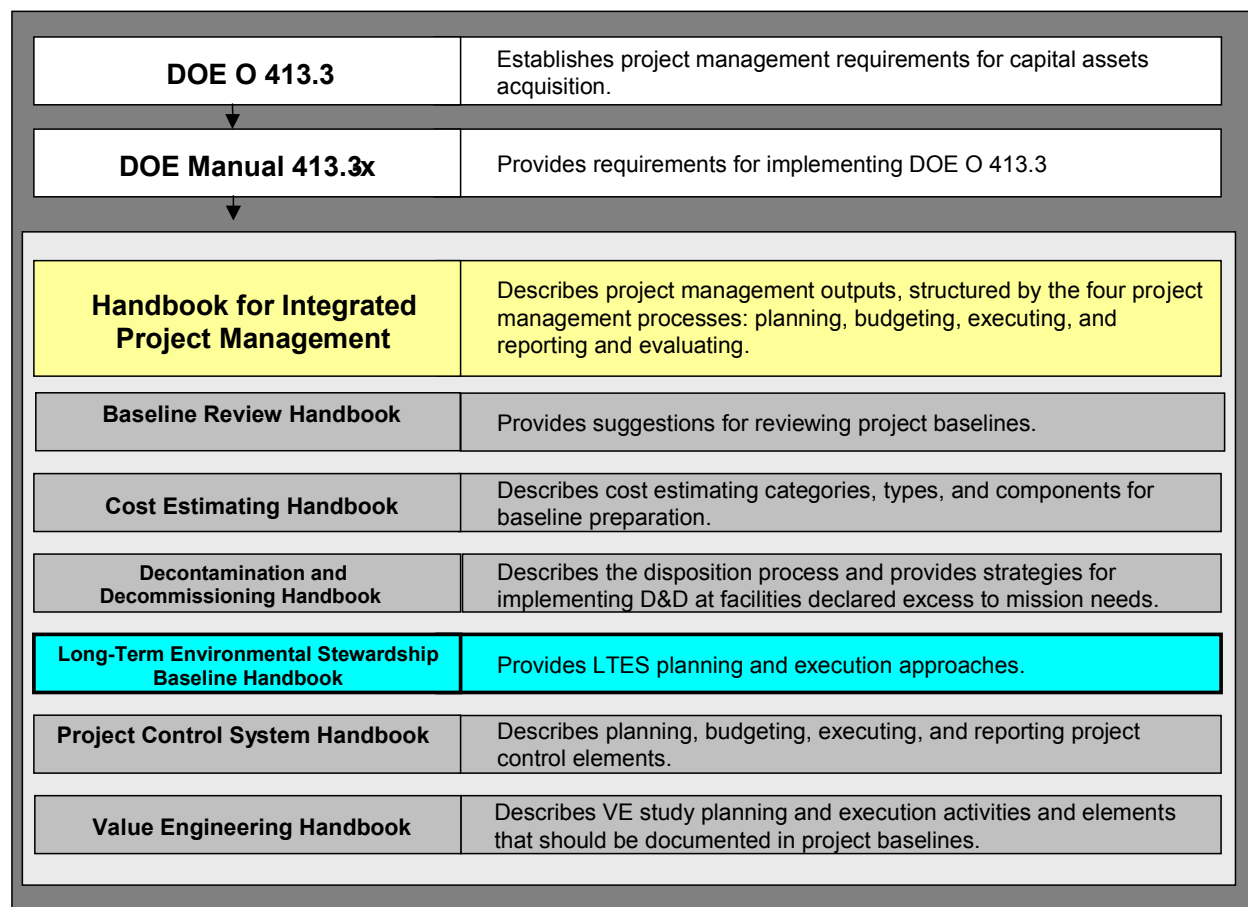


Fig. 1. Project Management Handbook Document Framework

PURPOSE

Among the project management topic-specific handbooks, the *LTES Handbook*'s purpose is to outline approaches for integrating site-specific LTES planning and implementation into site ER baseline documentation. Since LTES requirements will vary greatly from site to site, the Handbook also provides for flexibility in addressing LTES in ER Project life-cycle baselines, while clearly identifying EM requirements. The *Handbook* was derived from national and local draft long-term stewardship strategic plans identifying principles and objectives of LTES (3). It provides suggestions for enacting LTES principles and objectives through operational activities described in site-specific LTES plans and life cycle ER Project baseline scope, cost, and schedule documentation.

HANDBOOK ELEMENTS

As ER projects move toward completion, planning and incorporating LTES activities in project baselines is increasingly important for ensuring smooth transition from the ER Project to LTES.

However, is not intended that LTES planning should be immediately and entirely incorporated into baselines; sites may require several change cycles to fully integrate LTES into the life-cycle baselines.

The *Handbook* is structured to provide sites opportunity to employ a phased approach for integrating LTES planning into ER Project closure and transition while following standard project management and baseline development protocol. The following sections of this paper summarize the *Handbook* contents, describing and providing examples of elements required in baselines for documenting ER Project closure, transition, and LTES phases.

Documenting LTES Planning Activities in Baselines

LTES baseline documentation should include separately tracked and managed project scope descriptions, costs, and schedules. Primary baseline planning activities include:

- Documenting transition and ER Project closure activities
- Defining LTES and the LTES Plan
- Identifying LTES activities during the ER Project Phase
- Identifying LTES-phase activities, milestones, and life-cycle funding requirements

LTES scope detail is dependent on project maturity. Initially, LTES will be integrated into existing ER Project baselines. Eventually, though, the baselines become LTES baselines as ER projects are completed. Figure 2 includes a schematic ER Project completion and LTES sequence.

Documenting Transition and ER Project Closure

ER Project planning includes preparing a Project Closure and Transition (PCT) Plan during the Transition Period. If a PCT Plan has not been prepared, the scope, cost, and schedule for preparing one should be included in the baseline. The PCT Plan provides practical guidance to the site ER project staff to ensure that project closure is systematic and efficient, and that all administrative requirements associated with closure actions are completed. The PCT Plan results in information management that documents the closure process, including plans for interim surveillance and/or monitoring, ER site maintenance, and completing cleanup activities.

Defining LTES and the LTES Plan

It is important that ER project personnel and the personnel responsible for LTES implementation communicate during LTES Plan development to ensure the ER Project baseline includes the scope, cost, and schedule for all activities associated with preparing the LTES Plan and other plans affecting transition to LTES. LTES plans are the primary documents for implementing LTES and post-closure LTES management. Sites should prepare the LTES Plan during the Transition Period. LTES plans should describe long-term requirements at specified sites and list primary assumptions and risks. Closure documentation and a summary site status describing remedies and remaining hazards, risk assessments, and performance criteria and limitations should be completed and included in the LTES Plan.

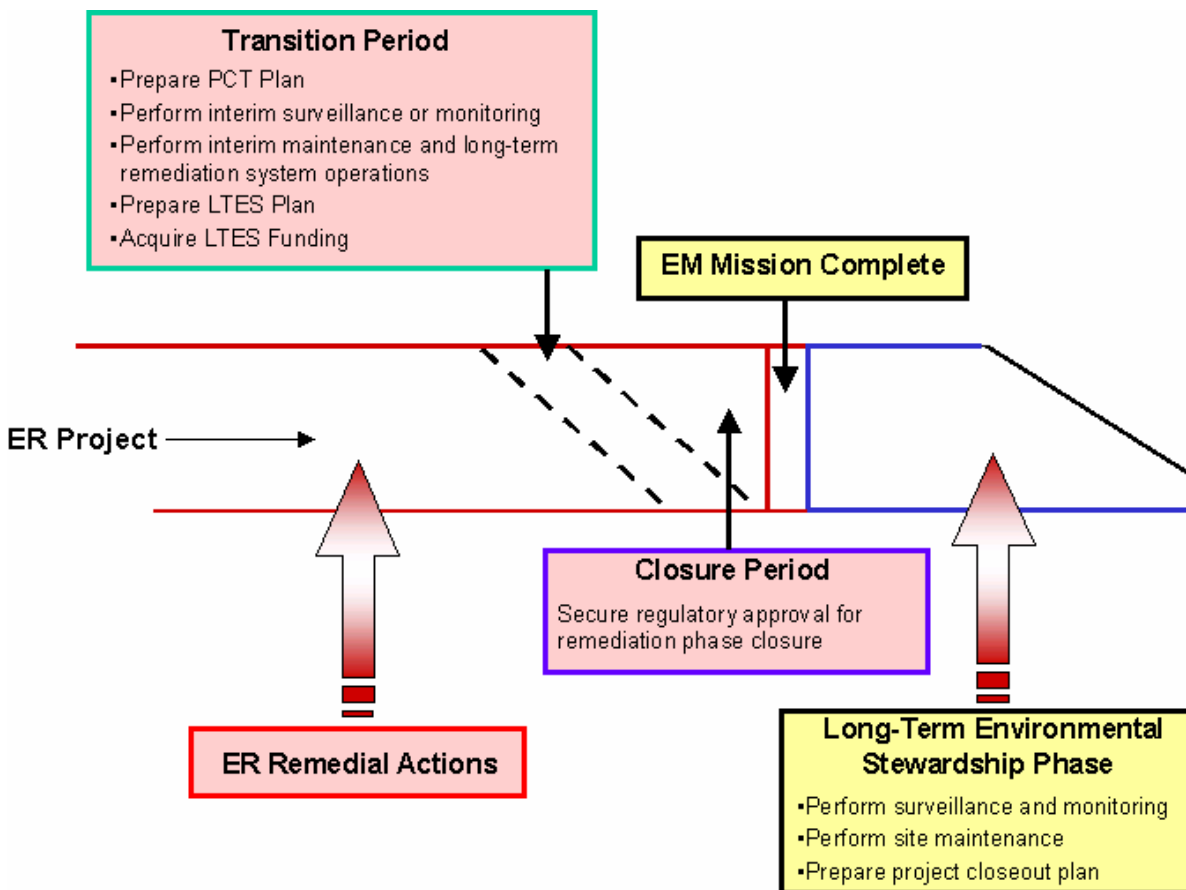


Fig. 2. ER and LTES Phases

Health and safety, quality assurance, stakeholder involvement, emergency response, and other pertinent plans also should be reviewed and modified to meet LTES requirements. It is appropriate to cite plans that will remain in effect during LTES, rather than reiterating them in the LTES Plan.

Transitioning LTES Work

LTES activities will most likely be shifted to another organization after the EM mission is complete. Ensuring a smooth transition will require early and frequent interaction between ER Project personnel and the organization responsible for LTES. It is anticipated that in contrast to the ER Project approach, LTES activities will be accomplished by organizations responsible for long-term site-wide stewardship. Scope, cost, and schedule for activities related to transition should be clearly documented in baselines. Transition work elements include but are not limited to:

- Planning for Transfer
- LTES Plan Integration
- Information Management
- Permitting Issues
- Budget Transfer
- Programmatic Risks and Vulnerabilities
- Alternative Lessees, Tenants, and Stakeholders
- Public Involvement

Determining and Documenting LTES Phase Activities During the ER Project Phase

Sites should identify Transition Period LTES activities in the baseline WBS, including preparing the LTES Plan and Project Closure and Transition Plan and conducting site maintenance and interim surveillance and monitoring activities. Scope, cost, and schedule for LTES activities with regulatory-approved final decision should be included in ER project baselines. Activities not included as LTES in baselines include site-wide ground water remediation that does not have regulatory approval and interim remedies. The ER project baseline schedule should present LTES start dates, end dates, duration of significant planning and LTES-phase activities, and milestones.

Milestones

The ER Project baseline schedule should include LTES start dates, end dates, duration of significant planning and LTES-phase activities, and milestones, as shown in Table 1. LTES milestones required by EM are checked (✓) among the examples shown in Table 1. Milestones will be unique to each ER project, depending on closure definitions, applicable regulatory requirements, and specific features and contaminants of concern.

Table I. LTES Milestones

Requirement	Milestone
✓	ER Project completion date
✓	LTES Plan completion
	DOE approval of final radioactive contamination-only site
	Submittal of final closure documentation to the regulatory authority
✓	Regulatory authority approval of the final closure document (e.g., the final permit modification request, Corrective Measure Implementation Report, or final No Further Action Report)
	Date of Resource Conservation and Recovery Act (RCRA) post-closure permit issuance, for sites under 40 CFR 265, Part G
✓	Estimated EM mission completion (same as LTES start date)
	Dates of active remediation system shut-down and transition to monitoring and/or closure
	Estimated LTES completion date.

Life-Cycle Funding Requirements

Sites must develop and annually update a funding estimate for LTES annual and life-cycle costs. Guidance concerning the number of years to consider in estimating life-cycle costs varies; however, when possible for planning purposes, sites should use known life-cycle periods supported by backup documentation. When the LTES life cycle is not known, a 70-year planning window is recommended. Sites estimating LTES to extend more than 70 years should document duration expectations in appropriate technical summary documents.

Sites may consider planning in terms of the 30-year RCRA post-closure monitoring period. However, monitoring does not necessarily end at the end of 30 years if contaminants are still present in the monitored media. Thus, the 70-year period is intended to prevent stakeholder concerns that monitoring could be terminated after 30 years, regardless of remaining risk.

LTES-PHASE BASELINE ELEMENTS

Work Breakdown Structure (WBS)

Sites should develop an LTES WBS. LTES work has many activities in common with ER project tasks, including Project Management and Technical Management and Support. Project Management baseline elements unique to LTES include changes resulting from transition to a LTES management organization. Technical Management and Support elements specific to LTES WBS are:

- Technical evaluations performed during LTES to optimize opportunities and minimize schedule and cost.
- Regulatory support for meetings; position papers; negotiations on emerging issues, strategies, and closure; maintaining and updating permits; and preparing reports for regulatory agencies.
- Risk assessment and evaluation based on changes in facility operations, site-wide environmental issues, or unexpected conditions; monitoring and evaluating engineered systems performance; and assessing human health and ecological risks associated with site performance and land use changes.
- Information management activities.
- Stakeholder involvement activities such as preparing public meetings, published information, and notices.

Other WBS elements associated with LTES and occurring at the same WBS level include Land Use and Institutional Controls, Site-Wide Environmental Monitoring and Physical Controls, and Potential Release Sites with Engineered Units and/or Signed and Fenced Units. Sites have flexibility regarding integration of LTES planning and LTES-phase activities into the project baseline WBS, but the *Handbook* includes an example WBS template illustrating typical WBS levels and work elements (Figure 3).

Risk Analysis and Management

Risk analysis includes risk management and analysis of both programmatic (out-of-scope) risks and contingency (in-scope risks). Project risks should be listed in the baseline and organized according to:

- Risks not affecting or resulting from LTES work
- Risks specifically related to LTES activities and engineered or structural controls.

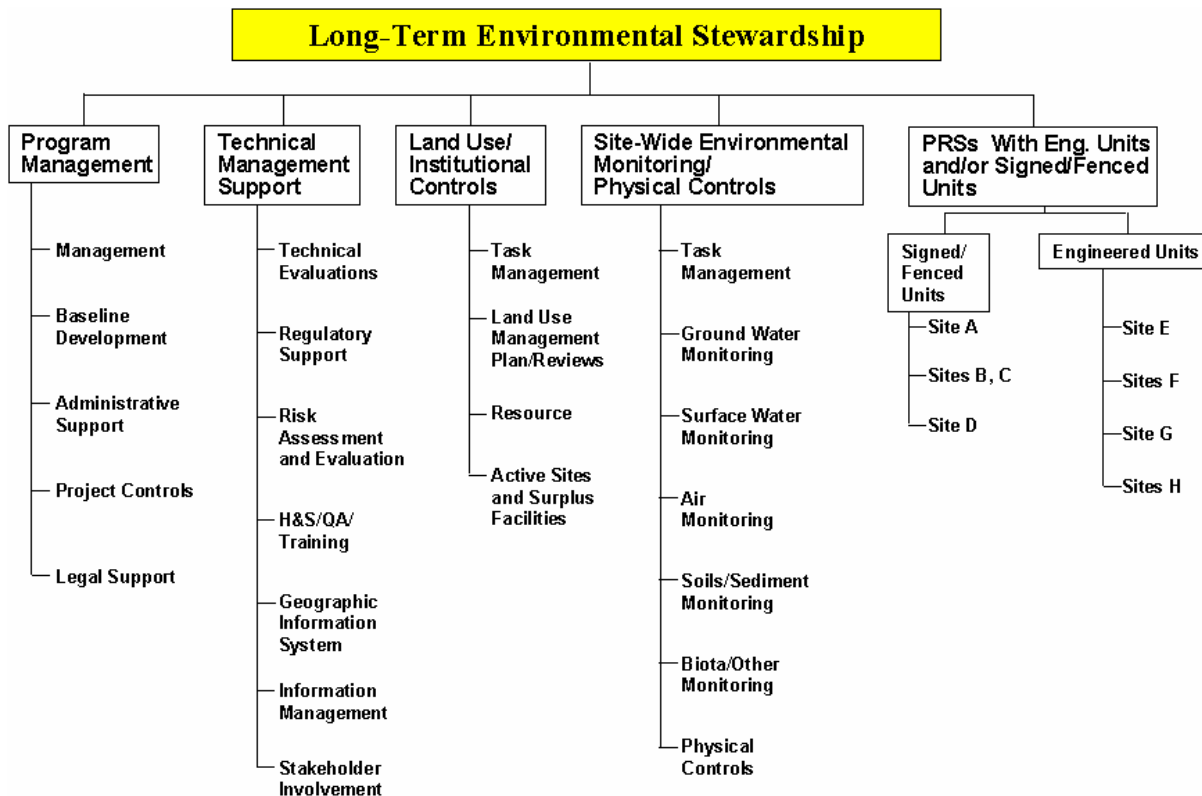


Fig. 3. Example LTES Work Breakdown Structure

Risks that could result in additional work not caused by or affecting LTES work or activities will not be funded through LTES, but should be identified in LTES baselines, including:

- Active sites that could become inactive, possibly requiring investigation and remediation work
- New sites that might be identified, requiring remediation
- Excess facilities that might become inactive, requiring decommissioning and decontamination.

Risks that could affect LTES include:

- Unexpected system failures
- Natural Resource Damage Assessment (NRDA) liability suits pursuant to CERCLA
- Regulatory changes affecting closure strategies or operations. (The long-term nature of LTES increases likelihood of regulatory changes.)
- New technologies that could eliminate risks or otherwise accelerate termination of LTES
- Changes in land use scenarios or conditions that affect closure.

Risks should be described in baseline documentation, including estimates of potential effects on scope, schedule, and cost. The scope, schedule, and cost to develop and maintain a Risk Management Plan as required for baselines also should be included in LTES planning and baselines.

Schedule

Resource-loaded project schedules are required in baselines. Schedules must include milestones.

Cost Estimating

LTES activity-based cost estimates are required in baselines.

Performance Measures

Potential LTES-related performance measures include meeting post-closure permit dates and reducing the number of potential release sites requiring LTES.

PROJECT REPORTING

The scope, cost, and schedule for project reporting required during LTES must be documented in the baseline. Reporting requirements include updating Integrated Planning, Accounting, and Budgeting System-Information System Program Execution Module (IPABS-IS PEM), yearly updates and site monitoring and evaluation reports, and five-year reviews. Some reporting through the Project Assessment and Reporting System (PARS) may be appropriate, although most LTES activities will not require PARS reporting. Reporting in the Facility Information Management System also may become necessary.

IPABS-IS PEM

The IPABS-IS PEM data and reporting requirements change annually, especially because DOE HQ is determining what data will be required and how performance will be measured for LTES. IPABS-IS PEM reporting requirements are described in the *Detailed Guidance for the Integrated Planning, Accountability, and Budgeting System Information System* (4). However, historical scope and cost of IPABS-IS PEM reporting should be included in the baseline.

Yearly Update and Review

Annual updates and reviews will occur through the baseline change control process. Scope and costs associated with preparing updates should be included in the baseline, including:

- Engineering system and site-wide monitoring data results and interpretation
- Physical controls and systems operation descriptions, including issues affecting performance.
- Significant changes in land use planning, institutional controls, or other issues that could impact the baseline scope, schedule, or budget.
- Expectations and accomplishments for the next year.

DOE will review annual updates as part of the baseline review process.

Five-Year Review

DOE guidance requires sites to conduct five-year reviews for the duration of LTES activities. Three primary DOE objectives for five-year updates and reviews are:

- Ensuring continued effectiveness of engineered and institutional controls in protecting human health and the environment.
- Evaluating remedy controls to optimize long-term maintenance and monitoring costs.
- Minimizing duplicative documentation.

Scope, schedule, and costs of five year reports containing monitoring and site inspection information, briefly summarizing the effectiveness of controls, and referencing other documents, as appropriate, should be included in LTES baselines.

IMPLEMENTING BASELINE GUIDANCE

Implementation of the *Handbook* will be driven, in part, by HQ policy decisions related to LTES. Input received from the field also will affect LTES baseline development. However, it is the intent of the *Handbook* that by supporting the use of a phased approach (applying the *Handbook* through several cycles), costs of integrating LTES into baselines will be minimal.

CONCLUSION

The NNSA Service Center EPD is committed to providing sites useful and thorough support and input for complying with project management requirements of DOE Order 413.3. Among the handbook document framework developed to address various aspects of project management, the *Long-Term Environmental Stewardship Baseline Handbook* provides sites the opportunity to benefit from more thorough planning, better quantification, broader understanding of risk and risk management factors, and more comprehensive documentation. LTES planning applied to baselines in a phased approach will facilitate transitioning to LTES seamlessly while requiring minimal additional resources.

REFERENCES

1. U.S. DOE. DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets*, October 13, 2000.
2. U.S. DOE. *Handbook for Integrated Program Management (HIPM)*, NNSA Service Center Environmental Restoration Division (ERD) (draft in progress).
3. U.S. DOE. *AL Long-Term Environmental Stewardship Strategic Plan*, Revision 2, Draft. U.S. DOE, Albuquerque Operations Office, Office of Environmental Programs, March 6, 2002
4. U.S. DOE. *Detailed Guidance for the Integrated Planning, Accountability, and Budgeting System Information System (IPABS-IS)*, Volume 2. U.S. DOE, Office of Environmental Management, February 17, 2000.