Principles of Environmental Restoration Lessons Learned

DOE-EM developed the Principles of Environmental Restoration (ER Principles) in the mid-1990s to effectively navigate multi-party programs and complex regulatory requirements and obtain improved cost and schedule performance of the nation's large cleanup projects. Improvements are driven by:

- Unified understanding of site data and conditions.
- "Right-sized" baseline development strategies.
- Confidence in remedial decisions.
- Effective stakeholder discussion and decision-making.

The following lessons were developed from 25 years' experience at DOE-EM, EPA, and various States that have invested in applying the ER Principles. They fall into three categories; Culture and Mindset, Tools and Decision-Making, and Information.

Principle 1 – Building an effective core team is essential.

Principle 2 – Clear, concise, and accurate problem identification and definition are critical.

Principle 3 – Early identification of likely response actions is possible, prudent, and necessary.

Principle 4 – Uncertainties are inherent and will always need to be managed.

Culture and Mindset

- **Set realistic priorities.**
  Decide what is important and assure it is done first.
- **Commit to early collaboration.**
  Know who the decision makers are and commit to having them engaged in the deliberative process. Collaboration should not be construed as undermining individual agency authorities and responsibilities. Capitalize on the opportunity to explore and innovate together.
- **Define expectations for contractors and consultants.**
  Firm, sustained management support from all parties (i.e., lead agency, regulators, and contractors) is essential to support real-time decision-making.
- **Assure appropriate timing of editorial efforts.**
  Create a culture of critical thinking and decision-making first and perfecting the document last.
- **Acknowledge when there is sufficient information.**
  Even if more information is possible to obtain, if it won't change the direction, continue moving forward. Not every "data gap" is a data need.
- **Don't let deliverable deadlines drive the production and submittal of documents**.
  Assure there is consensus among all decision makers on key information and conclusions, and let the enforceable schedule accommodate good-faith collaboration.

Tools and Decision-Making

- **Incorporate collaboration.**
  Factor discussions to form consensus among all parties into baseline schedules sufficiently ahead of formal document submittals.

- **Agree early on a standard set of site conditions that warrant action (e.g., media-specific thresholds).**
  This approach helps lead all parties to interpret site data with the same perspective and streamlines decision-making.
- **Establish technical protocols for key analytical processes.**
  Assure processes such as risk assessment, fate and transport modeling, etc. are agreed upon and remain consistent and reliable.
- **Define and document incremental decisions.**
  Understandings regarding large cleanup projects can evolve over 3 to 5 years. Establishing a working summary to preserve agreements and the basis for decisions helps eliminate uncertainty over the approach during the life of the project.
- **Scope the project life cycle, not just the current phase.**
  Looking ahead, especially to likely response actions, provides valuable context for managing project uncertainty.
- **Reach agreement on fundamental project components prior to combining them.**
  Decision makers ultimately must reach agreement to resolving individual releases to the environment. Grouping strategies will garner efficiencies, but only after there is a common understanding of individual components.
- **Engage independent facilitation.**
  Drive the discussions and manage the process so that the decision-makers can be on equal footing as they deliberate. Facilitators should be independent, but knowledgeable of the technical process.

Information

- **Synthesize information for ease of interpretation.**
  Leverage visual aids (e.g., maps, decision process illustrations, photos, data analysis)
- **Share synthesized information ahead of meetings.**
  Allow sufficient time for attendees to come to the meetings prepared to ask (or answer) questions about the data.
- **Use meetings to explore data in more detail to ensure common understanding.**
  Have related documents, and subject matter experts on hand to answer questions.

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