



ITRC TEAM PROJECT SUMMARY STATEMENT PRE-IMPLEMENTATION

ITRC Mining Waste Team
Mining Waste Treatment Technology Selection
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October 2010

METHODOLOGY SUMMARY

State of the Methodology

The ITRC Mining Waste Team has developed the “Mining Waste Treatment Technology Selection” website, an online technical and regulatory guidance document that helps regulators, consultants, industry, and stakeholders in selecting an applicable technology, or suite of technologies, for use in remediating mining and other sites with similar characteristics. Decision trees guide users through a series of questions to a set of treatment technologies that may be applicable to a particular site situation. Each technology is described, along with a summary of the applicability, advantages, limitations, performance, stakeholder and regulatory considerations, and lessons learned. Each technology overview links to case studies where the technology has been implemented.

Benefits of the guidance include the following:

- Web-based tool to work through decision trees and identify appropriate technologies
- a selection matrix applicable to all potentially affected media
- technology overviews
- access to case studies
- description of potential regulatory constraints
- applicable information for state, federal, industry, and stakeholders
- helps streamline/expedite review processes
- reference tool for new personnel to assist with training

Specific user groups and benefits include the following:

- State and Federal Project Managers
 - saves resources
 - offers a framework for a strategic approach to site remediation
 - provides overviews of several technologies that are applicable to mining waste sites, as well as other types of sites
- Consultants and Industry
 - saves resources
 - offers a framework for a strategic approach to site remediation
 - provides overviews of several technologies which are applicable to mining waste sites, as well as other types of sites

- Stakeholders
 - helps to achieve greater understanding of important issues, goals, and success
- Technology Vendors
 - helps provide innovative ideas for future technologies based on case study success and technology overview

TEAM SUMMARY

Process Attributes

The ITRC Mining Waste Team includes representatives from state and federal agencies, industry, academia, and stakeholders. Fields of expertise represented on the team include biologists, biochemists, geologists, and engineers. The team used case studies and literature searches to identify technologies, then evaluated the technologies for treating, stabilizing, reclaiming, and reusing solid mining waste and mining-influenced water. Regulatory barriers were identified, and recommendations are included for specific flexibility when there is a net environmental benefit.

The team has produced the first versatile ITRC Web-based tool that addresses multimedia components and provides the following:

- problem-solving methodology through an interactive approach
- an opportunity for ITRC to broaden customer-based projects in the future
- Web-based opportunities and challenges

Key Learning/Recommendations

The Mining Waste Team offers the following lessons learned and associated recommendations to assist ITRC and future teams in product development:

- ITRC provided seed money to initiate team development. This was a key step for this team to move forward at a later time when funding became available. It is important for ITRC to maintain development and support of investigating emerging or nontraditional issues in the future.
- To strengthen team development, it is suggested that State Points of Contact (POCs) reach out to other various agencies within the state to recruit team members.
- ITRC should evaluate and review several routine overall processes that affect many teams. Templates could provide boilerplate language for surveys, case studies, and technology overviews. In the long term, these steps would increase team efficiency and maintain ITRC consistency.
- ITRC teams should take adequate time to plan the survey to ensure all specific important points are captured. The team's survey did not include enough specific questions regarding technology effectiveness. Because responses were sketchy in many cases, team members had to do a considerable amount of follow-up to obtain more details.
- Detailed work can often lead to helpful information outcome in the future. The team noted that "matrix" work was difficult and time-consuming but provided information that facilitated the development of the decision trees.
- While the number of team members was above 50, a core group of 8–12 people worked together for all product development.

- Site visits are helpful for team members to gain a broader perspective of the issues and foster team interaction.
- Development of an “implementation team” from existing team members is one option that will assist with implementation activities.
- Since the document is Web-based (a “living document”), routine website maintenance will be necessary. These activities need to be planned and accounted for at the very beginning of the project.
- When using the Web format, ITRC should consider including yearly costs for website maintenance in team’s implementation budget. Website maintenance costs include the incorporation of ongoing revisions. ITRC should consider how and when revisions are to be made. The team proposes three levels of revisions:
 - Level 1—Includes changes to fix overall grammatical and other formatting errors. The date these changes are made should be documented on the site.
 - Level 2—Includes changes that are additions to existing information that do not change the “overall conclusions” of anything on the website. For example, some of the cases studies used bench, pilot or preliminary data, but more definitive results are now available that support the conclusions previously documented. The technology overviews would benefit from the inclusion of the updated information, and thus the implementation team would work to include the new information without changing the conclusions of the guidance. The date these changes are made should be documented on the site.
 - Level 3—Includes addressing new information that has come to the implementation team’s attention that calls into question a previous conclusion rendered in the guidance. This level of change requires a revision in a published part of the site. For example, overall data indicate that a technology does not support the conclusions included in the existing technology overview. This type of change may require a new project to address the change.
- Future ITRC teams should use the Web developer to assist through all stages of design. Make sure any text is in final form so that the Web developer does not have to perform grammatical revisions.
- Consider the development of team internships. Interns could assist in specific team projects and Web updates and attend ITRC meetings. This setup would provide a valuable opportunity to recruit younger members into ITRC, while at the same time providing assistance to ongoing team activities.
- The team recommends that the ITRC Board consider alternative methods of measuring success in addition to, or instead of, the existing concurrence process. Alternate measures of success may include Internet-based training (IBT) attendance, “hits” on Web sites, success stories, citations, etc. Concurrence may be a stumbling block for many states and does not truly identify nor encourage the use of ITRC products.

Next Steps

An implementation team consisting of five people has been established to assist with implementation over the next two years. The following activities are anticipated during implementation:

1. Offer presentations on the guidance in coordination with regional, national, and global conferences and meetings discussing solid and aqueous mining waste, sustainable development of natural resources, and redevelopment of historic mine sites around the United States.
2. Offer presentations in coordination with conferences and meetings.
3. Develop a shortened version of the IBT to address specific training timeframes.
4. Submit follow-up reminders to POCs for concurrence.
5. Offer presentations and outreach to POCs in regard to any Web-based case study and/or technology questions.
6. Find opportunities to educate and incorporate the Web-based tool into existing projects in their planning and review stages.
7. Investigate the appropriateness of incorporating the “Mining Waste Treatment Technology Selection” website and thought process into college course work.
8. Develop and disseminate marketing tools such as “video clips” that incorporate the team’s information.
9. Provide Web operation and maintenance activities to maintain “living document” information.