



ITRC TEAM PROJECT SUMMARY STATEMENT PRE-IMPLEMENTATION

ITRC Enhanced Attenuation: Chlorinated Organics Team
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TECHNOLOGY/METHODOLOGY SUMMARY

State of the Technology/Methodology

Enhanced attenuation (EA) is a plume remediation protocol and strategy used to transition sites from more active (high-energy) remedial processes, where effectiveness is diminishing, to lower-energy systems and eventually to monitored natural attenuation (MNA). Conversely, EA can provide a scientific methodology to evaluate and add EA technologies at sites where MNA is not progressing quickly enough. EA builds on the MNA concept by focusing on a balance between mass loading, aquifer attenuation capacity, and sustainability.

The Future

The EA framework helps regulators and practitioners understand the power and limits of enhanced attenuation and MNA, and equally as important, the reversibility of remedial design decisions. The future use and acceptance of the EA framework will transform current approaches toward a more holistic implementation of remedial actions and increase the use of modular (treatment train) remedial system designs. This framework will move sites through existing regulations more efficiently and offer a better coordinated system between practitioners and regulators. This will undoubtedly save time and capital and create the best remedial solutions for the environment. The guidance will increase the use and reliability of enhanced attenuation and monitored natural attenuation.

TEAM SUMMARY

ITRC Team Process Attributes

The ITRC Enhanced Attenuation: Chlorinated Organics Team comprised representatives from state regulators, academia, stakeholders, federal partners, and industry. Fields of expertise ranged from biology, biochemistry, and geology to engineering. The team collaborated with the Department of Energy (DOE) Technical Working Group comprising researchers from the DOE Savannah River, Oak Ridge, Pacific Northwest, and Idaho National Laboratories, as well as many internationally recognized academic experts.

Key Learning

- The framework is not a technology but rather a “repackaging” of a process flow path describing how best to proceed and when to change course
- Facilitates transition of contaminated sites through the remediation process
- Provides scientific documentation for remedy change

- Complements MNA and expands remediation opportunities
- Encourages a systematic approach to total site remediation
- Integrates source zone treatment and MNA
- Incorporates remedial efficiency by developing sustainable optimal solutions for each site

ITRC Team Next Steps

During implementation the team expects to accomplish the following:

- Offer a 10-minute streaming introduction to EA on the team's web page
- Post a real case study using the EA framework on the team's web page
- Offer a short classroom training course in coordination with conferences and meetings
- Submit follow-up reminders to ITRC state points of contact (POCs) for concurrence
- Offer contacts to POCs to answer framework questions
- Find opportunities to incorporate the framework into existing projects
- Investigate the appropriateness of incorporating the EA framework and "thought" process into college environmental course work