Science, Application, Monitoring, and Illustrative Case Studies of Biogeochemical Remediation

Moderator
Brant Smith, P.E., PhD (Evonik)

Panelists
Paul Tratnyek, PhD (Oregon Health & Sciences University)
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This panel will discuss the key elements required to be successful in each step of remediation using biogeochemical processes. These steps include understanding the fundamentals and advanced concepts regarding the following:

- Science. Biogeochemistry often involves multiple technologies and treatment technologies all capable of reducing many common contaminants of concern. Topics that will be covered include the multiple potential pathways (direct reduction, biotic, and then biogeochemical), contaminants treated, sulfidization of ZVI, reduction of sulfate and other microbial processes involved, and types of iron sulfides formed.
- Design. Key elements of a design including iron, carbon, and sulfur sources, pH control, microbial activity as well as typical dosages to be applied in certain scenarios. In addition, there will be a discussion on site assessment as to whether biogeochemical is the appropriate technology given site-specific conditions.
- Application. Application methods for various scenarios, key requirements and distribution of reagents and precipitates will be discussed.
- Monitoring. Key elements of a monitoring program will be discussed including baseline and post-application monitoring of both microbial and geochemical conditions to ensure the intended treatment mechanisms are being effective.
- Illustrative case studies. Biogeochemical remediation has been applied for over a decade. Case studies illustrating how and why biogeochemical remediation was selected and was effective will be presented.

Following initial presentations from each of the panel members, the session will be opened to a question and answer session.