

A Model for Combined Remedies at Well 12A Superfund Site, Tacoma, Washington

Moderators

Jim Cummings (U.S. EPA, Washington, DC)
Neil Smith (CDM Smith, Denver, CO)

Panelists

Tamzen Macbeth, Ph.D. (CDM Smith, Helena, MT)
Dominic Giandrone (CDM Smith, Bellevue, WA)
Emily Crownover, Ph.D. (TRS Group, Inc., Longview, WA)

The Well 12A Superfund Site in Tacoma, Washington, has been undergoing remediation since 1983 to address releases of chlorinated volatile organic compounds (CVOCs) and petroleum hydrocarbons from historical operations. Remedial actions have included:

- Air stripping treatment at municipal supply well 12A (1983-present)
- Shallow soil excavation (1986, 1991-1992, 2011-2012)
- Groundwater extraction and treatment (1988-present)
- Soil vapor extraction (1993-1997)
- Enhanced anaerobic biodegradation (2013–present)
- Electrical resistance heating at steaming temperatures (2014)
- Electrical resistance heating at below steaming temperatures (2015-present)

Since the amendment to the Record of Decision for the site in 2009, which amended the selected remedy to include more aggressive approaches to reduce or eliminate source mass, the Well 12A site has served as a model for remedial designs that include combined remedies approaches, with an adaptive management strategy which allows for flexibility in remedy implementation. Management strategies using metrics such as mass flux and mass discharge to establish performance objectives and evaluate remedial progress are also being applied.

The primary topics to be covered during the panel discussion include the following:

- Adaptive management and flexible implementation of a holistic combined remedy approach
- Establishing performance metrics and evaluation of remedial progress, including strategies for forecasting and adjusting implementation in real-time
- Impacts due to complex geology/hydrogeology and management of these impacts during remedy implementation
- Sequencing of activities to take advantage of technology synergies
- Measurement of mass discharge at the site and lessons learned