

# **Showing Extent Practicable with Short Term Multi-Phase Extraction (MPE) for MRBCA Regulated Underground Storage Tanks**

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# Overview

- Regulatory Requirements.
- Technology Selection.
- Remedy Implementation.
- Process Monitoring.
- Managing expectations and end points.

# Regulatory Requirements

- 10 CSR 26-2
- *Missouri Risk-Based Corrective Action Process for Petroleum Storage Tanks*, February 2004, as amended March 8, 2005.
- *Missouri Risk-Based Corrective Action Process for Petroleum Storage Tanks* guidance document, October 17, 2013.

# Regulatory Requirements: Site Specific Considerations.

- The Risk Assessment, accepted by the Department, determined that the Domestic Use Pathway is incomplete.
- A Corrective Action Plan to address all unacceptable risks, and free product recovery has been submitted and accepted by the Department.

# Technology Selection

The Corrective Action Plan needs to evaluate several options for free product recovery.

- LNAPL-3: LNAPL Site Management: LCSM Evolution, Decision Process, and Remedial Technologies, ITRC, March 2018

# Remedy Implementation

- Pilot testing is needed prior to full implementation to verify the assumptions made in the Corrective Action Plan.
- The Pilot Test results needs to evaluate if site-specific designed and installed recovery wells are needed.

# Remedy Implementation, continued

- Initial and final stinger depth should be agreed to prior to mobilization.
- Remedy optimization through the adjusting of extraction locations based on field conditions should be addressed prior to mobilization.

# Process Monitoring

Asymptotic recovery, as shown by an exponential curve, is desired endpoint.

- For datasets to be used for statistical analysis precision is more important than accuracy.
- Regularly spaced data points are appropriate.
- Tracking MPE system vacuum pressures, and total flow rate is important for on-site system operations.



# Managing expectations and end points

- Depth and size of smear zone may prevent remediation of entire source zone.
- Free Product may return after remediation is considered complete.
- Uncertainty in subsurface conditions make estimating time to completion difficult at best.
  - You can't use descriptive statistics without a data set to describe.



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# Questions/Comments?

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