

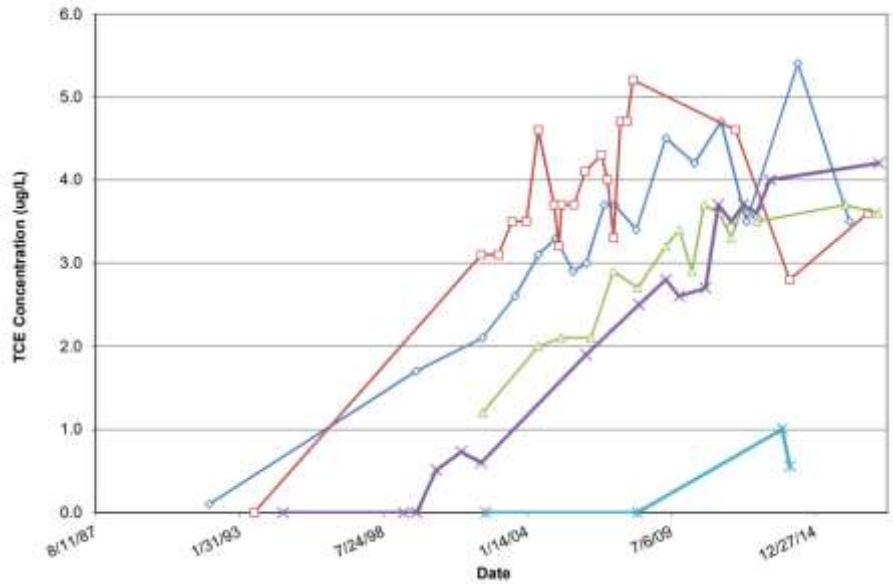
P&T Transition to MNA

Baytown Township
Lake Elmo, MN
2008–2020
Metalworks
Superfund Site/NPL

P&T Objectives: TCE and
CCl4 to MCL

Risk Scenario—Impact to
drinking water supply wells

Figure 7D - TCE Concentrations in CJDN East Transect at Select Wells
Baytown Ground Water Contamination Site
Baytown Township, Minnesota



Between 2004 and 2006, Minnesota Pollution Control Agency (MCPA) conducted several rounds of soil probe and well sampling to identify the source and receptors of a TCE plume affecting the water wells. In 2008, MPCA installed and began operating a groundwater extraction and treatment system to contain contaminated groundwater to the Hagberg Property, formerly the Neilson Products Company property.

In 2007, angled injection wells were drilled beneath the property building to pilot an ISCO source remedy. Between the ISCO pilot and hydraulic capture system, contamination at the site was reduced. But after 2008, the concentration of TCE began to rebound.

The 2011 optimization report recommended that the project team investigate the vadose zone underneath the old Neilsen Product Company Building for NAPL and implement a tracer study prior to moving forward with full-scale source-area treatment (ISCO, ERD, or ZVI).

It also recommended that the submersible pumps be pulled from the extraction wells on a quarterly or semiannual basis for inspection and cleaning along with the influent piping and control cables. At the same time, sediment levels at the bottom of the extraction wells should be measured, and the wells flushed, purged, and/or re-developed as needed.

Lines of evidence used to support the optimization recommendations:

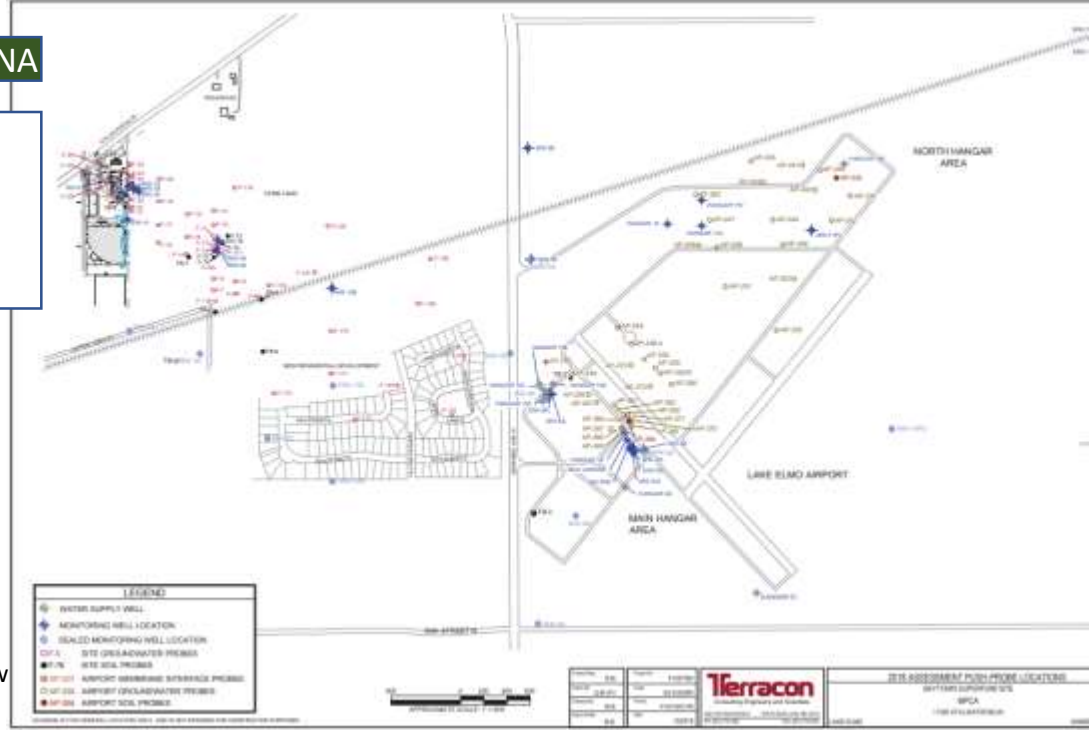
1. Source zones were not fully characterized, and the existing monitoring wells did not capture the northern and southern extent of the plume.
2. The P&T system had had some mechanical failures.
3. There was a statistically significant increasing trend in TCE concentrations since the 2007 ISCO pilot within the hydraulic barrier, indicating rebound (determined by a Mann-Kendall Analysis).
4. High TCE mass in the middle groundwater unit was detected beneath the building.

An Interim ROD will be prepared to document the remedy selection and implementation.

Initial Condition
Optimization Review
Outcome

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- Initial Condition
- Optimization Review
- Outcome

The site evaluation suggested a phased approach to the implementation of ISCO (or an alternative technology) for source-area treatment would provide a method of cost control. It would allow for progressive observational evaluation of the effectiveness of source-area treatment before committing to further rounds of treatment injections or expansion of the treatment area. This provided an opportunity to terminate further source-area treatment if there was not sufficient progress in reducing TCE groundwater concentrations.

MPCA conducted Phase 1 of source-area treatment in January 2015 and Phase 2 treatment in May 2016. For Phase 1, MPCA tested two treatment methods: ISCO and ERD. ISCO area TCE concentrations rebounded significantly, so ERD was selected for Phase 2.

Prior to initiation of Phase 2 treatment, MPCA installed a vapor mitigation system for the commercial building overlying part of the source area. This was a precautionary measure to protect against potential contaminant vapors being released beneath the building during ERD treatment. Phase 2 treatment results varied across the source area but generally showed further reduction in TCE concentrations.

A 2019 capture zone analysis was completed at the site to determine the pumping rate of a singular well that was determined to be sufficient for continued hydraulic capture at the site. Following Phases 1 and 2, the P&T system showed diminishing returns and was shut down in July 2020. A Shutdown and Monitoring Plan for Baytown Hydraulic Barrier System was prepared by MPCA in 2021, which clarifies restart criteria for the hydraulic barrier system. The plan also describes the changes made to the system for long-term shutdown and the requirements to restart the system in the future, if needed.

Stakeholders: The nearby residences had GAC filters installed on their private wells. Some residences had higher than average water use due to pools and agricultural activities. The optimization report suggested a cost-benefit analysis to determine whether a larger GAC filter would reduce the maintenance requirements at those residences.

P&T Actions Conclusion
 P&T transitioned to MNA
 Time Span: 5 years
 Lifetime cost savings: \$375,000–500,000
 Sustainability benefits: Reduced air blower rates and pumping rates