

NOTES

- ① Groundwater migrates from east to west, from high topographic areas underlain by quartzite sandstone to the carbonate aquifer that underlies the western half of the site.
- ② Groundwater flows within the carbonate aquifer through a network of solution channels and fractures. Flow direction is widely variable, but the net direction is westward.
- ③ The frequency of solution cavities in the carbonate aquifer above 170' - 200' bgs is 15% - 19%. Below this depth, the frequency is 2%, and the hydraulic conductivity is reduced.
- ④ Deep conduits (> 200' bgs) are connected to the shallow conduit system.
- ⑤ DNAPL is suspected to have penetrated downward through the karstified portion of the aquifer and into the underlying fractured portion of the aquifer against an upward vertical piezometric head. DNAPL adsorbs onto and diffuses into the rock matrix and dissolves in groundwater. Natural processes degrade the TCE & PCE into cis12DCE.

- ⑥ At depth, anaerobic dechlorination has completely degraded TCE & PCE to cis12DCE.
- ⑦ Operation of groundwater extraction wells in the WPL capture Site-impacted groundwater flowing westward through the CPA and WPL. Capture of groundwater containing COCs in the deepest portions of the karst aquifer has been demonstrated by pumping of the relatively shallow extraction wells.
- ⑧ Reversal of natural groundwater flow has been demonstrated from as far down gradient as the eastern Codorus Creek Levee Area by pumping of the groundwater extraction system.
- ⑨ Some Site-related COCs appear to bypass the extraction system near the SW-WPL, discharging to the Codorus Creek through karst conduit-connected springs. The flux of COCs to the creek is exacerbated by surface water entering sink holes near this area (karst loss) and the deteriorating extraction rate of CW-20.

- ⑩ Noncarbonate Kinzers Shale eliminates the potential for development of solution channels connecting the site to carbonate rocks further west, and is a barrier that forces the discharge of site-impacted groundwater to the creek.

LEGEND

- Solution Channels (Conceptualized)
- Water Table
- Generalized Net Direction of Groundwater Flow
- Residual DNAPL (Chlorinated Hydrocarbons)
- Dissolved Chlorinated Hydrocarbons Partitioning From DNAPL Sources
- Dissolved Chlorinated Hydrocarbons Migrating with Groundwater (Advection)
- Conceptual Extraction Well

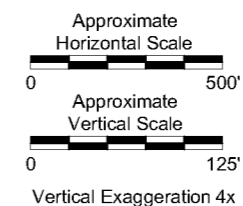


Figure 4.0-3
(revised 1/18/2018)

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**Conceptual Site Model
Cross Section A-A'
Pumping Conditions**

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