



## Considerations for physical or hydraulic containment

Soil type should be taken into account for physical or hydraulic design to ensure it meets performance metrics.
Range of seasonal water level change needs to be defined.
Changes in flow direction may reduce or negate effect of barrier system.
Presence and locations of subsurface utilities and foundations.
To test permeability of barrier wall mixes. For cement mixtures, there is a need to check chemical compatibility with groundwater chemistry. Saline waters adversely affect cement, but also inhibit bentonite slurry set up in certain conditions.
Monitoring wells downgradient of barrier to verify no occurrence of LNAPL.
For hydraulic interception barriers (wells or trenches), maintain reversal of hydraulic gradient.
LNAPL constituent meets standard at point of compliance.
Other groundwater flow models may be applicable.
<a href="http://www.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-2504.pdf">http://www.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-2504.pdf</a>
<a href="http://clu-focus.sec.gov/Permeable%20Reactive%20Barriers,%20Permeable%20Treatment%20Zones,%20and%20Zero-Valent%20Iron.pdf">http://clu-focus.sec.gov/Permeable Reactive Barriers, Permeable Treatment Zones, and Zero-Valent Iron.</a>
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