

Table A-15.B. Evaluation factors for in situ chemical oxidation

Remedial time frame	Concern	Very low to low
	Discussion	Very short to short—typically less than one year. Best used on residual LNAPL. Not unusual for two or three injection applications; many more may be needed depending on LNAPL volume and desired end point, and the frequency of additional injections must be anticipated from bench testing.
Safety	Concern	High
	Discussion	Oxidants reactions can be very rapid and exothermic. Oxidant handling requires personal protective equipment (PPE). Infrastructure materials (e.g., piping and valves for injection) must be compatible with the oxidant.
Waste management	Concern	Low
	Discussion	All reactions are in situ. Recirculation type delivery requires waste management.
Community concerns	Concern	Low to moderate
	Discussion	Concerns with noise, potential odors, aesthetics, and volatile emissions. Personnel in protective clothing may give public some concern.
Carbon footprint/energy requirements	Concern	Low
	Discussion	Low external energy requirements. Recirculation type delivery requires more energy.
Site restrictions	Concern	Moderate
	Discussion	Injected down well bores, so generally not hampered by site restrictions, but may have to restrict public access during application of the oxidants.
LNAPL body size	Concern	Moderate to high
	Discussion	Higher success rate on small areas with minor LNAPL in-well thickness of a few inches or less. Free-product remediation is safe and accessible to solid peroxygens.
Other regulations	Concern	Moderate
	Discussion	May need an injection permit. Fracturing of the formation is a potential concern, which could impede UIC authorization for injection.
Cost	Concern	Moderate to high
	Discussion	May be cost-effective where LNAPL body is small or impact localized.
Other	Concern	
	Discussion	