

Table A-9.B. Evaluation factors for steam injection

Remedial time frame	Concern	Very low to low
	Discussion	Dependent on the size of the site, can be short (6 - 9 months) for relatively small sites. However, steam injection is more commonly used for large, deep sites, which may require longer (greater than 1 year) remedial time frames.
Safety	Concern	High
	Discussion	Steam under pressure and hot water and LNAPL extracted. Possible steam eruption from wells. Safety protocols for steam and hot water are well known in industry.
Waste management	Concern	Moderate
	Discussion	Collect LNAPL and groundwater with high dissolved concentrations from recovery wells and treat the off-gas. Standard treatment technologies are available. Emulsification may increase water treatment and disposal costs.
Community concerns	Concern	Low to moderate
	Discussion	Process equipment, high temperature warnings may be cause for concern. Also, noise, odor.
Carbon footprint/energy requirement	Concern	Moderate
	Discussion	Equipment needed to generate steam requires large supply of energy. Generally, less total energy and carbon footprint than is required to extract the same amount of contaminants at ambient temperatures.
Site restrictions	Concern	High
	Discussion	Large amount of equipment, piping, and control of vapor emissions. Field team on site during technology application. Application area restrictions during technology application.
LNAPL body size	Concern	Low
	Discussion	Steam injection is most suited for large, deep sites, where large well spacing and higher injection pressures can be used.
Other regulations	Concern	Moderate
	Discussion	May need an injection permit. May need a permit to discharge vapor and treated groundwater.
Cost	Concern	Moderate to high
	Discussion	High costs to generate steam and high operation and maintenance costs. Short duration and overall high effectiveness can make present value cost-competitive.
Other	Concern	
	Discussion	