

EPA's 9 Criteria Analysis

**Table 10-1
Comparative Analysis of Soil and Groundwater Remedial Action Alternatives With Respect to CERCLA Criteria**

Criterion	Soil Alternative 2	Soil Alternative 3 (Selected Remedy)	Groundwater Alternative 2	Groundwater Alternative 4 (Selected Remedy)	Groundwater Alternative 6
Overall protectiveness	Protective	Protective	Protective	Protective	Protective
Compliance with ARARs	Does not comply with ARARs for non-VOCs	Better; complies with ARARs for VOCs and non-VOCs	Complies with ARARs	Complies with ARARs	Complies with ARARs provided recirculation zones are formed.
Long-term effectiveness and permanence	Effective for VOCs. Effective for non-VOCs while Institutional controls are in place and pavement is maintained in good condition	More effective for non-VOCs; shallow and accessible non-VOC contamination will be permanently removed	Effective; groundwater with COC levels above action levels will be treated	Potentially more effective; supplemental in situ treatment may expedite cleanup	Stand alone in situ technology may be effective if recirculation zones are formed and scaling is prevented
Reduction in toxicity, mobility, or volume through treatment	Does not reduce toxicity or volume of non-VOCs	Better for non-VOCs; volume of non-VOC contamination will be reduced	Reduces volume of COCs	Potentially better; also reduces toxicity of COCs in place	Reduces volume of COCs if recirculation zones are formed
Short-term effectiveness	VOC treatment within 2 years. Well construction must not create conduits for vertical migration of COCs. Soil gas emissions must be effectively controlled	Same as Alternative 2. Fugitive dust and soil gas emissions during excavation and transport must be controlled. Workers must be properly attired	Appreciable short-term results are not expected. Potential commingling with off-site plumes. Well construction must not create conduits for vertical migration of COCs	Better; supplemental in situ treatment may expedite cleanup. Lower potential for plume commingling.	Some increase in VOC levels may be observed initially. Well construction must not create conduits for vertical migration of COCs
Implementability	Construction will temporarily disturb surface structures and activities. Transport of waste off site is required. Institutional controls will require that an appropriate entity (e.g. DTSC) be willing to accept and enforce the restrictive covenant to be executed by the property owners.	Same as Alternative 2, plus transport will also be required for excavation and off-site disposal of contaminated soil	Anti-degradation policies may apply if treated water is reinjected. Construction activities will temporarily disturb surface structures and some activities at Cooper Drum. Waste discharge conditions from the RWQCB are required	Same as Alternative 2, plus numerous (temporary) injection points will disturb surface structures, activities, and traffic on- and off-site. Waste discharge conditions will be required for injection of chemicals and treated water	Worse; installation of numerous (permanent) wells and associated piping will disturb surface structures and activities both on- and off-site. An above-ground treatment plant with sound-proof enclosure is required. Waste discharge conditions are required
Present worth capital cost (\$1,000)	\$460	\$1,946	\$447 (a) \$638(b)	\$2,451	\$2,734
Annual O&M cost (\$1,000)	\$47	\$47	\$220 (a) \$247(b)	\$208	\$261
Total present worth cost (\$1,000) (c)	\$1,284	\$2,770	\$3,529 (a) \$4,077(b)	\$5,364	\$6,589

- (a) Treated water discharged to POTW.
 (b) Treated water reinjected into aquifer.
 (c) Present worth cost estimates are based on 2001 dollars and were calculated using a 7% discount rate. Remedial action start year was assumed to be 2003, and the duration of remedial action was set to 20 years. The cost of 3 years of post-remedial action compliance monitoring was included for all action alternatives.

ARAR applicable or relevant and appropriate requirements
 COC chemical of concern
 O&M operation and maintenance
 VOC volatile organic compound

Reference: Record of Decision, Sept. 2002