

Appendix A – Cost Breakdown of Removal Action Alternatives

High Vacuum Soil Vapor Extraction and Treatment					
Item Description	Unit	Quantity	Unit Rate	Subtotal	Assumptions/Notes:
Capital Costs:					
System Permitting	EA	1	30,000	\$30,000	SCAQMD and City Permits
Rental of 2-PHASE™ Units	M	12	7,500	\$90,000	Rental of 1 unit
Rental of Vapor GAC Beds	M	12	1,500	\$18,000	Rental of 2 1,000-lb beds per unit
GAC (in pounds)	EA	20,000	1.25	\$25,000	Initial fill + 2 changeouts for the vapor phase beds
Installation of Wellheads	EA	9	1,000	\$9,000	Subcontractor's Estimate
Installation/Development of Wells	EA	9	4,000	\$36,000	Subcontractor estimate for 9 wells (4" PVC Schedule 40)
Installation Permanent Vapor Probes	EA	6	2,500	\$15,000	Subcontractor estimate for 9 wells (4" PVC Schedule 40)
Logging by Geologist	HRS	75	125	\$9,375	Oversight and logging during well installation
Piping (2" Schedule 80 PVC Piping)	LF	700	7.25	\$5,075	ECHOS Guide 33-26-0428
Trenching (2 feet wide by 2 feet deep)	CY	700	10.00	\$7,000	ECHOS Guide 17-03-0259
Backfilling with excavated material	CY	700	15.00	\$10,500	ECHOS Guide 17-03-0401
Electrical Hookup	EA	1	30,000	\$30,000	Subcontractor's Estimate
CAPITAL COSTS SUBTOTAL				\$285,000	Rounded
Engineering Design (15%)				\$42,800	Rounded
Project Management (20%)				\$57,000	Rounded
Contingency (20%)				\$57,000	Rounded
TOTAL CAPITAL COSTS				\$441,800	Rounded
Annual O&M Costs:					
Vapor Sampling: VOCs by TO-14	EA	50	175	\$8,750	For startup operations, up to 10 samples. For annual performance sampling, 2 influent samples per month. To comply with SCAQMD permit, 1 effluent sample per month.
Engineer		580	110	\$63,800	Engineer's Estimate. 100 hours for startup + 40 hours per month
ANNUAL O&M COSTS SUBTOTAL				\$72,600	Rounded
Reporting (20%)				\$14,600	Rounded
Project Management (25%)				\$18,200	Rounded
TOTAL ANNUAL O&M COSTS				\$105,400	Rounded
Periodic Costs:					
None				\$0	
TOTAL COSTS				\$550,000	Rounded