Appendix C

Cost Estimates for Corrective Measures Alternatives

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Cost Estimate Summary for Site-Specific Technology Comparisons
Corrective Measures Study - Berkeley Lab

Hazard Area	Plume	Technology Description	Cost Estimate (Constant $)	Net Present Value					
			Operations Period:	5	10	15	20	25	30
Old Town Groundwater Solvent Plume Bldg. 7 Lobe	Source	Expand DPE treatment system	Cap. =$94,700 O&M = $118,500/yr	$629,800	$1,088,900	$1,479,700	$1,812,300	$2,098,900	$2,342,500
Old Town Groundwater Solvent Plume Bldg. 7 Lobe	Source	Excavate soil	Cap. = $569,200	$569,200	$569,200	$569,200	$569,200	$569,200	$569,200
Old Town Groundwater Solvent Plume Bldg. 7 Lobe	Core	O&M of soil flushing treatment system	Cap. = $22,000 O&M= $62,000/yr	$300,800	$540,100	$743,700	$917,100	$1,066,400	$1,193,400
Old Town Groundwater Solvent Plume Bldg. 7 Lobe	Core	Install In Situ Chem. Ox. Treatment system	Cap. = $4,150,000	$4,150,000	$4,150,000	$4,150,000	$4,150,000	$4,150,000	$4,150,000
Old Town Groundwater Solvent Plume Bldg. 7 Lobe	Core	Excavate soil	Cap. = $6,180,000	$6,180,000	$6,180,000	$6,180,000	$6,180,000	$6,180,000	$6,180,000

OLD TOWN GROUNDWATER SOLVENT PLUME BLDG. 7 LOBE SOURCE AREA
EXPAND DUAL PHASE EXTRACTION with SOIL HEATING and HOT AIR INJECTION COST ESTIMATE

ASSUMPTIONS:

A. Develop work plan for expansion.
B. Expand DPE by adding two additional extraction wells with equipment and heaters.
C. Add two monitoring wells.
D. Dispose of cuttings as hazardous.
E. Perform O&M of treatment system for 30 years.
F. Decommission treatment system at end of project.
G. New construction work will be done in FY04.
H. Decommissioning will be done in FY2034.
I. NPV calculated using EPA method and a discount factor of 3.2%

CAPITAL COST

1. Work plan		$ 9,700
2. Expand DPE		$ 51,700
3. Decommissioning		$ 24,700
4. Contingency		$ 8,600
	Total Capital Cost	$ 94,700

ANNUAL OPERATIONS AND MAINTENANCE COST (30 YEARS)

1. O&M DPE		$ 107,700
2. Contingency		$ 10,800
	Total Annual O&M	$ 118,500

TOTAL PRESENT VALUE COSTS $ 2,342,500

OLD TOWN GROUNDWATER SOLVENT PLUME BLDG. 7 LOBE SOURCE AREA
EXCAVATION COST ESTIMATE

ASSUMPTIONS:

J. Develop engineering/design for excavation.
K. Excavate area that is 200 sf by 60 ft. deep.
L. Excavate by drilling 3ft. dia. Holes (40 ea.).
M. Assume that half of waste is hazardous and half is non-hazardous.
N. Sample soil for VOC and metal.
O. Install two monitoring wells.
P. Remove and replace concrete slabs at the site.
Q. Assume relocate a moderate amount of utilities that are in the work area.
R. Work will be done in FY04.
S. NPV calculated using EPA method and a discount factor of 3.2%

CAPITAL COST

5. Engineering/Design		$ 40,000
6. Excavation		$ 434,300
7. Contingency		$ 94,900
	Total Capital Cost	$ 569,200

TOTAL PRESENT VALUE COSTS $ 569,200

OLD TOWN GROUNDWATER SOLVENT PLUME BLDG. 7 LOBE CORE AREA
O&M of EXISTING SOIL FLUSHING TREATMENT SYSTEM

ASSUMPTIONS:

T. Perform O&M of treatment system for 30 years.
U. Decommission treatment system at end of project.
V. Decommissioning will be done in FY2034.
W. NPV calculated using EPA method and a discount factor of 3.2%

CAPITAL COST

8. Decommissioning		$ 20,000
9. Contingency		$ 2,000
	Total Capital Cost	$ 22,000

ANNUAL OPERATIONS AND MAINTENANCE COST (30 YEARS)

3. O&M Soil Flushing System		$ 56,000
4. Contingency		$ 6,000
	Total Annual O&M	$ 62,000

TOTAL PRESENT VALUE COSTS $ 1,193,400

OLD TOWN GROUNDWATER SOLVENT PLUME BLDG. 7 LOBE CORE AREA
INSTALL a CHEM. OX. TREATMENT SYSTEM

ASSUMPTIONS:

X. Much of installation is on a steep side slope.
Y. Develop engineering/design for new construction.
Z. Install a Chem. Ox. Treatment system for an area of 9,100 sf. by 50 ft. deep. (364 wells)
AA. Figure moderate utility relocation.
BB. Remove asphalt and replace.
CC. Remove stairs and replace.
DD. Install road and cut benches to access slope.
EE. Slope will require shoring.
FF. Soil cuttings from well drilling are considered as hazardous waste disposal, all other excavation is considered non-hazardous disposal.
GG. New construction work will be done in FY04.
HH. Decommission treatment system at end of project.
II. NPV calculated using EPA method and a discount factor of 3.2%

CAPITAL COST

10. Engineering/Design		$ 420,000
11. In Situ Chem. Ox. System		$ 2,100,000
12. Decommissioning		$ 940,000
13. Contingency		$ 690,000
	Total Capital Cost	$ 4,150,000

TOTAL PRESENT VALUE COSTS $ 4,150,000

OLD TOWN GROUNDWATER SOLVENT PLUME BLDG. 7 LOBE CORE AREA
EXCAVATE CONTAMINATED SOIL

ASSUMPTIONS:

JJ. Much of installation is on a steep side slope.
KK. Develop engineering/design for new construction.
LL. Excavate core plume area of approximately 7,700 sf by 50 ft. deep.
MM. Figure two areas of the above excavation, each approx. 700 sf will be excavated by drilling 3 ft. dia. Boreholes. The rest will be excavated with long reach excavators.
NN. Figure moderate utility relocation.
OO. Remove asphalt and replace.
PP. Remove stairs and replace.
QQ. Install road to access slope for excavation.
RR. Excavation will require shoring.
SS. Half of excavation spoils will be reused as backfill and half disposed offsite.
TT. Soil disposal is considered as hazardous waste.
UU. Remove and relocate an existing liquid nitrogen tank.
VV. Backfill area of excavation and return to pre construction conditions.
WW. Install five monitoring wells.
XX. New construction work will be done in FY04.
YY. NPV calculated using EPA method and a discount factor of 3.2%

CAPITAL COST

14. Engineering/Design		$ 860,000
15. Excavation		$ 4,290,000
16. Contingency		$ 1,030,000
	Total Capital Cost	$ 6,180,000

TOTAL PRESENT VALUE COSTS $ 6,180,000