NUS CORPORATION
A Halliburton Company

SDMS Document
107984

D-33-3-6-6
CT-02-FS-D(2)-II

FEASIBILITY STUDY

VOLUME II
APPENDICES A AND B

CALDWELL TRUCKING COMPANY SITE
TOWNSHIP OF FAIRFIELD, NEW JERSEY

EPA WORK ASSIGNMENT
NUMBER 69-2LB3
CONTRACT NUMBER 68-01-6699

NUS PROJECT NUMBER S796

JUNE 1986

CTC 001 1247

NUS CORPORATION

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D-33-3-6-6
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REGION II

CTC 001 1248

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DRAFT

APPENDIX A

RISK CALCULATIONS AND ACTION LEVEL BACKUP CALCULATIONS

CTC 001 1251

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: EPA II	FILE NO.: $796	BY: JMP	PAGE 1 OF 3
SUBJECT: Caldwell Trucking Co.		CHECKED BY: DMJ	DATE: 3-31-86

Problem - Determine the onsite soil concentrations that correspond to 1×10^{-6} lifetime cancer risks from accidental ingestion or dermal contact.

Assumptions

- Compounds are evenly distributed throughout the onsite soils
- A receptor will be exposed to all compounds following dermal contact or accidental ingestion.

Known or suspected carcinogens in onsite surface soil or was in the central lagoon area, existing lagoon, and north lagoon are:

cmpd	q^* (mg/kg-day)
tetrachloroethene (PCE)	6×10^{-4}
trichloroethene (TCE)	1.2×10^{-2}
chloroform	7×10^{-2}
vinylchloride	2.9×10^{-2}
benzene	1.75×10^{-2}

Assumes:

- PAHs will be removed to background levels
- PCBs will be removed to EPA interim PCB soil action levels (1×10^{-6} total risk for PCBs)

*Does not consider compounds detected in SD-7 or SD-15

To translate total risk into risk levels for individual contaminants divide the total target risk level by the number of known or suspected carcinogens:

$$1 \times 10^{-6} / 5 = 2.0 \times 10^{-7}$$ } target risk level for each compound

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: EPA II	FILE NO.: 8796	BY: JMP	PAGE 2 OF 3
SUBJECT: Goldwell Trucking Co		CHECKED BY:	DATE: 3-31-86

Dermal Exposure

assume
- max lifetime soil accumulation 7900g - 110,000 soil
- 70 yr lifetime
- 70 Kg man
- 100% of the compound is absorbed through the skin

• Maximum exposure

$$ug/kg = \frac{Risk \times 70Kg \times 70yr \times 365\ day/yr}{1mg/10^3 ug \times 1Kg/10^3 g \times 110{,}000 \times g}$$

• Minimum exposure

$$ug/kg = \frac{Risk \times 70Kg \times 70yr \times 365\ day/yr}{1/10^6 \times 7900g \times g}$$

Accidental Ingestion

assume
- soil ingestion rate 0.1 - 5g/day (Sciaum
- Exposure duration - 1240 - 1830 days (Sciaum
- 14Kg child (Sciaum, 984)
- 70 yr lifetime

• maximum Exposure

$$ug/kg = \frac{Risk \times 14Kg \times 70yr \times 365\ days/yr}{g \times mg/10^3 ug \times mg/10^3 g \times 1830\ days \times 5g/day}$$

• minimum Exposure

$$ug/kg = \frac{Risk \times 14Kg \times 70yrs \times 365\ days/yr}{g \times 1/10^6 \times 1240\ days \times 0.1g/day}$$

NUS CORPORATION AND SUBSIDIARIES — STANDARD CALCULATION SHEET

CLIENT: EPA II	FILE NO.: 4796	BY: JMP	PAGE 3 OF 3
SUBJECT: Caldwell Trucking Co		CHECKED BY: PEM	DATE: 3-31-8[illegible]

Soil [illegible] total [illegible]

Dermal Exposure *

Compound	q	Soil concentration [illegible] MAX. EXPOSURE	MIN. EXPOSURE
PCE	6×10^{-2}	✓ 54 ✓	✓ 755 ✓
TCE	1.2×10^{-2}	✓ 271 ✓	✓ 3773 ✓
chloroform	[illegible]	✓ 46 ✓	✓ 647 ✓
benzene	2.9×10^{-2}	✓ 112 ✓	✓ 1561 ✓
vinyl chloride	1.75×10^{-2}	✓ 186 ✓	✓ 2587 ✓

Accidental Ingestion *

Compound	q	Soil concentration [illegible] MAX. EXPOSURE	MIN EXPOSURE
PCE	6×10^{-2}	✓ 130 ✓	✓ 9616 ✓
TCE	1.2×10^{-2}	✓ 651 ✓	✓ 48078 ✓
chloroform	7×10^{-2}	✓ 112 ✓	✓ 8242 ✓
benzene	2.9×10^{-2}	✓ 270 ✓	✓ 19,894 ✓
vinyl chloride	1.75×10^{-2}	✓ 447 ✓	✓ 32968 ✓

* assumes PAHs will be removed to background levels and PCBs will be removed to EPA Interim PCB Soil Action Levels.

Schaum, J 1984 Risk Analysis of TCDD Contaminated Soil, EPA-600/8-84-031, U.S. EPA, Washington, D.C.

CTC 001 1254

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: [illegible]	FILE NO.: [illegible]	BY: RTM	PAGE 1 OF 2
SUBJECT: [illegible]		CHECKED BY: [illegible] DMJ	DATE: [illegible]

[illegible] Determine the [illegible] in soil cancer risk [illegible] correspond to [illegible] lifetime cancer risk [illegible] ingestion or dermal contact at the north lagoon [illegible] to consider [illegible] transport of [illegible] known or suspected carcinogens in onsite surface soil at the north lagoon*:

trichloroethene — Carcinogenic potency factor (q) = 1.2 × [illegible]

tetrachloroethene — " (q) = 5 × [illegible]

* [illegible] To translate total risk into risk levels for individual [illegible] divide the total risk level by the number of known or suspected carcinogens.

$$\frac{1 \times 10^{-6}}{2} = 5 \times 10^{-7}$$

Dermal exposure

(Minimum) dermal exposure

$$\mu g/kg = \frac{\text{risk (unitless)} \times 70\ kg \times 70\ yr \times [illegible]}{\frac{1\ kg}{10^3\ g} \times \frac{1\ mg}{10^3\ \mu g} \times 110000\ [illegible] \times [illegible]}$$

(Minimum) dermal exposure

$$\mu g/kg = \frac{\text{risk} \times 70 \times [illegible] \times 365}{1/106 \times 7000\ [illegible]}$$

Soil Action Levels (ug/kg)**

	Max.	Min.
[illegible]	677	9433
Pr[illegible]	155	1893

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NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT: [illegible]	FILE NO.: 5745	BY: RCM	PAGE 2 OF 2
SUBJECT: [illegible]		CHECKED BY: JWF	DATE: [illegible]

[illegible]

(Max) [illegible] = $\frac{\text{risk} \times 14\text{ kg} \times 70\text{ yrs} \times [illegible]}{8 \times 1/10^6 \times 1820\text{ mg} \times 5\text{ g/day}}$

(Min) mg/kg = $\frac{\text{risk} \times 14\text{ kg} \times 70 \times 365}{8 \times 1/10^6 \times 1240 \times 0.1\text{ g/day}}$

[illegible] Action Levels (ug/kg)**

	Max	Min
TCE —	1629	120,195
PCE —	326	24,039

** Assumes TCEs will be removed to EPA interim [illegible] that [illegible] via [illegible] of 10 [illegible] TCEs

CTC 001 1256

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: EPA II	FILE NO.: $796	BY: JMP	PAGE 1 OF 12
SUBJECT: [illegible]		CHECKED BY: DMS	DATE: [illegible]

Problem - Determine the theoretical soil concentrations that correspond to groundwater concentrations (in the [illegible] aquifer) associated with a 1×10^{-6} cancer risk, and for non carcinogens, those that are within [illegible] standards and criteria.

Approach - To estimate the concentration of contaminants in groundwater (from soil contamination) at a receptor location the following steps are used:

- generation of leachate from the waste or soil
- migration of leachate through the unsaturated zone
- migration of contaminants in the groundwater aquifer to a receptor location.

Alternate concentration levels can be developed in reverse in the order of the above:

(1) Determine the target risk level and associated groundwater concentrations at receptor
(2) Consider migration of the contaminants from the site to the receptor location
(3) Consider migration of leachate through the unsaturated zone
(4) Consider the generation of leachate from the waste and contaminated soil

This evaluation considers groundwater transport in the [illegible] aquifer.

CTC 001 1257

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: EPA I	FILE NO.: 5766	BY: JMP	PAGE 2 OF 7
SUBJECT: [illegible]		CHECKED BY:	DATE: 4-[illegible]-86

3. The [illegible] risk level of the receptor [illegible] 1 in 10^-6. To translate this risk into target risk levels for [illegible] divide the total target risk level by the number of known or suspected carcinogens in onsite soil.

- Central Lagoon area
  10 known or suspected carcinogens in soil *

  $1 \times 10^{-6} / 10 = 1.0 \times 10^{-7}$ } target risk level for each individual compound

  * Considers all compounds detected in the central lagoon and surface and subsurface soil in "A" and "B" AREAS OF FIGURE 4-20 of the RI REPORT. Considers total PAHs (as carcinogenic figure) and total PCBs

- North Lagoon AREA
  3 known or suspected carcinogens in soil **

  $1 \times 10^{-6} / 3 = 3.3 \times 10^{-7}$ } target risk level for each individual compound

  ** Considers compounds detected in soil borings B1 and B10 and surface soils (trichloroethene, tetrachloroethene, and total PCBs)

CTC 001 1258

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: ETI	FILE NO.: [illegible]	BY: JMP	PAGE 3 OF 12
SUBJECT: [illegible]		CHECKED BY:	DATE: [illegible]

To determine the groundwater concentration associated with the target risk levels

$$Risk = \frac{q \times 2l/day \times ug/l \times mg/1000ug}{70 Kg}$$

$$ug/l = \frac{Risk \times 70 Kg}{q\left(\frac{Kg\text{-}day}{mg}\right) \times 2l/day \times mg/1000ug}$$

Central Lagoon AREA

Compound	q	Groundwater Concentration 1×10^{-6} TOTAL RISK (ug/l)
trichloroethene	1.2×10^{-2}	✓ 0.39
tetrachloroethene	6×10^{-2}	✓ 0.058
Chloroform	7×10^{-2}	✓ 0.05
1,1-dichloroethane	1.47×10^{-1}	0.023
TOTAL PAHs *	11.5	✓ 3×10^{-4}
n-nitrosodimethylamine	25.9	✓ 1.4×10^{-4}
4,4' DDT	0.34	✓ 0.01 ✓
benzene	2.9×10^{-2}	✓ 0.12
vinyl chloride	1.75×10^{-2}	✓ 0.2
total PCBs	434	✓ 2.1×10^{-4}

North Lagoon

Compound	q	Groundwater Concentration 1×10^{-6} TOTAL RISK (ug/l)
trichloroethene	1.2×10^{-2}	✓ 0.96
tetrachloroethene	6×10^{-2}	✓ 0.9
TOTAL PCBs	434	✓ 2.66×10^{-3}

* q for benzo(a)pyrene

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: EPA II	FILE NO.: #796	BY: JMP	PAGE 4 OF 12
SUBJECT: [illegible]		CHECKED BY: DMJ	DATE: 4-[illegible]-86

Determine target concentrations for [illegible] required for [illegible] evaluation limited to noncarcinogens for which dose-response parameters have been developed

CENTRAL LAGOON

Compound (1)	Criterion or [illegible] (5)	Target [illegible] (6)
[illegible]	[illegible] (4)	23
[illegible]	188 (3)	10
ethylbenzene	680 (4)	36
diethyl phthalate	434,000 (2)	22,842
[illegible]	340 (1)	18 ✓
[illegible]	4050 (3)	213 ✓
trans 1,2-dichloroethene	70 (4)	4 ✓
[illegible] (3)	21,000 (1)	1105 ✓
1,3-dichlorobenzene	470 (3)	25 ✓
1,4-dichlorobenzene	470 (3)	25 ✓
1,2-dichlorobenzene	470 (3)	25 ✓
1,2,4-trichlorobenzene	900 (3)	47 ✓
naphthalene	9000 (1)	474 ✓
phenol	3500 (1)	184 ✓
di-n-butylphthalate	44000 (2)	2316 ✓
chlorobenzene	60 (4)	3 ✓
isophorone	20 (1)	1.0 ✓
1,1,1-trichloroethane	200 (4)	10.5 ✓

(1) SNARL (3) AWQC
(2) ADI (4) RMCL
(5) Considers whichever guideline or criteria is lower
(6) Calculated by dividing the criteria by 19 (n+1 = 19; where n = the number of [illegible] in the mixture [illegible])
(7) Evaluation limited to compounds for which dose-response parameters have been developed
(8) DOES NOT CONSIDER carcinogenicity

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NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT: EPA II	FILE NO.: 57[illegible]	BY: JMC	PAGE 5 OF 12
SUBJECT: [illegible]		CHECKED BY: DMS	DATE: [illegible]

[illegible]

[illegible] (7)	Criteria or Guideline ug/l (6)	Target Concentration Terminal [illegible] (ug/l)
[illegible]	[illegible] (3)	55
[illegible]	[illegible] (3)	[illegible]
Toluene	34	378
[illegible]	[illegible] (5)	[illegible]
[illegible]	20 (5)	22
[illegible]	21,000 (5)	2333
[illegible]	16 (3)	20.7
[illegible]	70 (3)	7.8

[illegible]

(3) [illegible]

(4) [illegible]

(5) Calculated by [illegible] the [illegible] or [illegible] [illegible] (where [illegible] number of [illegible] [illegible] [illegible])

(6) Considers whatever guideline or criteria is lower

(7) Evaluation is limited to compounds for which dose-response parameters have been developed

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: ETA	FILE NO.: 5796	BY: JMP	PAGE 6 OF 7
SUBJECT: [illegible]		CHECKED BY:	DATE: [illegible]

[illegible] migration of contaminants to a downgradient receptor location

[illegible] the WHS Dispersion Model (Federal Register [illegible])

$$C_y = C_o \operatorname{erf}\left[\left(\frac{Y}{4\gamma}\right)^{\frac{1}{2}}\right] \operatorname{erf}\left[\frac{X}{4(\alpha_t Y)^{\frac{1}{2}}}\right]$$ ✓ [illegible]

[illegible] = width of waste disposal area - m

Y - distance to nearest residential receptor (m)

α_t - transverse dispersivity [illegible] for bedrock flow

C_o - aquifer conc at site [illegible]

X = length of waste disposal area

C_y = [illegible] groundwater concentration

$$C_o = \frac{C_y}{\operatorname{erf}\left[\left(\frac{Y}{4\gamma}\right)^{\frac{1}{2}}\right] \operatorname{erf}\left[\frac{X}{4(\alpha_t Y)^{\frac{1}{2}}}\right]}$$

[illegible]

[illegible] = [illegible] = [illegible] m

γ = 112 ft = [illegible] m

α_t = 30 m

X = 57.15 m

Y = nearest downgradient residential receptor

$$C_o = \frac{C_y}{\operatorname{erf}\left[\left(\frac{34.5}{4(3.4\gamma)}\right)^{\frac{1}{2}}\right] \operatorname{erf}\left[\frac{57.5}{4(30)(34\alpha)^{\frac{1}{2}}}\right]}$$

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$$C_0 = \frac{C_y}{[0.19][0.17]}$$

$$C_0 = \frac{C_y}{0.03}$$

Central Lagoon

$Y' = 45.72$
$l = 457.2\ m$
$\alpha t = 30\ m$
$x = 103\ m$

Y = nearest downgradient residential well

$$C_0 = \frac{C_y}{\mathrm{erf}\left[\left(\frac{45.72}{4(457.2)}\right)^{\frac{1}{2}}\right]\mathrm{erf}\left[\frac{103\ m}{4(30)(457.2)^{\frac{1}{2}}}\right]}$$

$$C_0 = \frac{C_y}{\mathrm{erf}[0.16]\,\mathrm{erf}[0.22]}$$

$$C_0 = \frac{C_y}{[0.18][0.24]}$$

$$C_0 = \frac{C_y}{0.04}$$

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: EPA II	FILE NO.: 5796	BY: JMC	PAGE 3 OF 2
SUBJECT: [illegible]		CHECKED BY: DMS	DATE: [illegible]

[illegible] at a downgradient [illegible]

(4) [illegible] zone [illegible] (Jan et al 1982) [illegible]

$$J_{u2} = \frac{V_d \, m}{q \, L} \, J_0$$

where J_{u2} = [illegible] conc (mg/l)
J_0 = source conc (mg/l)
V_d = [illegible] Groundwater velocity

V_d = [illegible] ft

(Spoyd, 1756) [illegible] 55,000 gal-day-ft / 350 ft = [illegible]

$\frac{[illegible] \text{ gal/ft}^3}{[illegible] \text{ gal/ft}^3}$ = 134 ft-day

[illegible] 6×10^{-4} ft/ft

V_d = [illegible] $\times$ 134 = 8×10^{-3} [illegible] (2.8×10^{-6} m/s)

$8 \times 10^{-3} \frac{ft}{day} \times \frac{365 \, day}{year} \times \frac{12 \, in}{foot} \times \frac{2.54 \, cm}{in}$ = 39 cm/year

m = aquifer thickness in meters
11.75 ft (sum sat thickness of CTMW11, CTMW13, MW4A, MW4A) and 350 ft (thickness of the bedrock aquifer = 361.75 ft = [illegible] meters

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[illegible]

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: FPA	FILE NO.: 7756	BY: JMP	PAGE 9 OF 12
SUBJECT: [illegible]		CHECKED BY: DMS	DATE: [illegible]

[illegible]

L = [illegible] to the water table

Central Lagoon 4-20 [illegible] = 150 ft = 45.72 m

North Lagoon 4-20 [illegible] = 112.5 ft = 34.3 m

Central Lagoon

$Co = 89 cm/yr \times 110 meters \times \frac{1 yr}{24 cm} \times \frac{1}{45.72 meters} \times Co$

$Cu2 = 8.92 Co$

North Lagoon

$Cu2 = 89 cm/yr \times 110 meters \times \frac{1 yr}{24 cm} \times \frac{1}{34.3 meter} \times Co$

$Cu2 = 11.9 Co$

(6) The soil concentration that corresponds to the [illegible] can be calculated as follows

$Koc = \frac{ug\ adsorbed/g\ soil\ organic\ carbon}{ug\ dissolved/g\ solution}$

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: [illegible]	FILE NO.: [illegible]	BY: [illegible]	PAGE 10 OF 12
SUBJECT: [illegible]		CHECKED BY: DMS	DATE: [illegible]

[illegible]

[illegible] kg = [illegible] / [illegible] [illegible]

ug/kg = [illegible] x 0.01 .

Summary all equations:

Central Jacksonville

[illegible]

$$[\text{Chemical}]_{ug/kg}\ soil = 0.01\ (8.92)\ [illegible]\ \frac{C_1}{0.04}$$

North Jacksonville

$$[\text{Chemical}]_{ug/kg}\ soil = 0.01\ (11.9\ [illegible])\ \left(\frac{C_1}{0.03}\right)$$

Using the spreadsheet, the following tables were generated:

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NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT: [illegible]	FILE NO.: 579	BY: [illegible]	PAGE 11 OF 2
SUBJECT: [illegible]		CHECKED BY:	DATE: [illegible]

[illegible]

[illegible] (Koc)(Cs/Co)

Carcinogens	Koc	Soil Concentration [illegible]
[illegible]	123	79.5 ✓
[illegible]	3[illegible]8	51.5 ✓
[illegible]	38.9	4.3 ✓
[illegible]	6.9	9.3 ✓
TOTAL PAHS	524,807*	351.1 ✓
N-nitrosodimethylamine	7.33	2.1×10^{-3} ✓
4,4' DDT	77624.7	17,310 ✓
benzene	83.1	22.2 ✓
vinyl chloride	813	36.2 ✓
Total PCBs	31780.9**	57.4 ✓

* Koc for benzo(a)pyrene

** Ave Koc for PCB-1016, PCB-1242, PCB-1248, PCB-1254, PCB-[illegible]

Non Carcinogens	Koc	Soil Concentration [illegible]
1,1,1-trichloroethane	57.54	1.3 ✓
xylenes	691.8	35.4 ✓
[illegible]thene	69183.7	1542.8 ✓
EB	851	68.3 ✓
DEP	102	5195.6 ✓
toluene	346.7	13.9 ✓
[illegible]dichloroethane	42.6	20.2 ✓
1,1-DCE	147.9	1.3 ✓
3ETHP	375	9154.3 ✓
1,3-dichlorobenzene	1479	82.4 ✓
1,4-dichlorobenzene	1659	92.5 ✓
1,2-dichlorobenzene	1348.9	75.2 ✓
naphthalene	52.5	54.5 ✓
[illegible]	8.7	3.6 ✓
[illegible]	1047	5407 ✓
chlorobenzene	436	2.9 ✓
[illegible]thene	105958	23.6 ✓
1,2,4-trichlorobenzene	6918	725 ✓

16/33

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NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT: [illegible]	FILE NO.: [illegible]	BY: JMP	PAGE 2 OF [illegible]
SUBJECT: [illegible]		CHECKED BY: [illegible] DS	DATE: [illegible]

Action Levels

CO

North [illegible] (see page 3 of 12)

[Chemical]soil = 0.6 [illegible] (Koc) ([illegible])

Carcinogens	Koc	Soil Concentration
TCE	123	468A ✓
PCE	398	300 ✓
TOTAL PCBs	49505.6 *	522 ✓

* Ave. Koc of PCB-278, PCB-1242, PCB-260

→ See Page (5 of 12)

Non Carcinogens	Koc	Soil concentration mg
EB	851	255 ✓
Xylene	691.8	134.2 ✓
toluene	346.7	52 ✓
napithalene	52.4	208 ✓
acenapthene	16575.9	145 ✓
BEHP	3715	34,379 ✓
fluoranthene	69183.7	5735 ✓
trans 1,2-dichloroethane	147.9	4.6 ✓

Sources:

Federal Register, Vol. 50., No 229. Nov 27, 1985. Hazardous Waste Management System; Identification and Listing of Hazardous Waste, Final Exclusions and Final Vertical and Horizontal Spread Model (VHS)

Dongarra, A.S et. al. 1983. Rapid Assessment of Potential Groundwater Contamination Under Emergency Response Conditions, EPA-600/8-83-030.

CTC 001 1268

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: EPA	FILE NO.: 579	BY: ZSM	PAGE 1 OF 6
SUBJECT: Caldwell Trucking		CHECKED BY: DMS	DATE: 4-6-86

Purpose - Estimate the concentration of particulate and suspended solids which would be released and emitted as particulate (respirable size) dust at a given wind speed from the soil exposed during the construction of the Lot.

Assumptions —

From Vesilind (1976)

$$E_{HE} = K(0.0009)\frac{\left(\frac{S}{5}\right)\left(\frac{V}{2.2}\right)\left(\frac{H}{15}\right)}{\left(\frac{M}{2}\right)^2\left(\frac{Y}{40}\right)^{3.33}}$$

where

E_{HE} = emission factor (lb/acre/hr)

K = [illegible] size multiplier for particles < 10 μg

S = silt content of [illegible] soil
= 75 (estimate based on Corvallis Silt loam)

V = mean wind speed 2 m-sec

H = drop height = 2 m

M = moisture content (%) = .25 (low end of range for most construction estimate)

Y = dumping capacity (m^3) = 3 m^3

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT:	FILE NO.:	BY:	PAGE 2 OF 5
SUBJECT:		CHECKED BY: DMS	DATE:

[illegible]

$= 0.037$ kg/Mg

[illegible]

Estimating the weight of material in the [illegible] is [illegible] Mg/m³ and the dumping rate is [illegible] per [illegible] the release rate can be calculated as:

$$\frac{[illegible]\ m^3}{bucket} \times \frac{15\ buckets}{hr} \times \frac{[illegible]\ Mg}{m^3} \times \frac{0.037\ kg}{Mg} \times \frac{1\ hr}{3600\ s} \times \frac{[illegible]}{kg} = 23\ g/sec$$

From Turner (1970), the following equation is used to estimate the maximum ground level concentration of respirable [illegible] under room [illegible] downwind of the [illegible]:

$$\chi = \frac{Q}{\pi \sigma_y \sigma_z u} \exp\left[-\frac{1}{2}\left(\frac{h}{\sigma_z}\right)^2\right]$$

where χ = conc. at downwind point

Q = emission rate (g/sec)

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT:	FILE NO.:	BY:	PAGE 5 OF 5
SUBJECT:		CHECKED BY: DMS	DATE:

[illegible]

σ_y = Dispersion coefficient in the lateral direction (m)

σ_z = Dispersion coefficient in the vertical direction (m)

u = wind speed (m/sec)

For short term (8-hr ave) worst-case conditions stable atmospheric conditions (stability class F), avg. wind speed (0.18 m/sec) and a wind direction toward the [illegible] 100% of the time are assumed.

The dumping operation is considered a point source with an initial height of 3m (the height of a dump truck) [illegible] at 100m downward. σ_y and σ_z are equal to 7m and 4.7m respectively.

Thus:

$$\chi = \frac{2.3\,g/sec}{\pi(7m)(4.7m)(0.18\,m/sec)} \exp\left[-\frac{1}{2}\left(\frac{3m}{4.7m}\right)^2\right]$$

$$= 2.2\,mg/m^3$$

CTC 001 1271

average, [illegible]

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT:	FILE NO.:	BY:	PAGE 4 OF 6
SUBJECT:		CHECKED BY: DMS	DATE:

Contact Lagoon —

Cmpd	Avg conc (ug/m³)	[illegible]
TCE	50377	1.2 x 10⁻²
PCE	23020	5 x 10⁻²
CCl4	28152	4.34
chloroform	520	7 x 10⁻²
benzene	3.2	2.9 x 10⁻²
vinyl chloride	4.5	1.75 x [illegible]
DMF (total)*	27.5	[illegible]

[illegible] is dominant [illegible] excavation period. Thus, start [illegible] with risk rate estimated earlier

$$\frac{\text{lbs}}{\text{[illegible]}} \times \frac{100\ \text{g}}{\text{[illegible]}} \times \frac{\text{bucket}}{38\ m^3} \times 18425\ m^3 = \text{[illegible]}$$

To estimate risk —

$$\text{Risk} = \frac{\text{dose}}{\text{kg/day}} \times q$$

Using an inhalation rate of 20 m³/day —

$$\frac{20\ m^3}{24\ hr} \times \frac{8\ hr}{day} = 6.7\ m^3/\text{8 hr exposure day}$$

* [illegible] only [illegible] PAHs including [illegible], Benzo(a)pyrene, [illegible] Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene

CTC 001 1272

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT:	FILE NO.:	BY:	PAGE 5 OF 5
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Risks – Ave concentration

$$\frac{\text{mg/day} \times \text{g} \left(\frac{\text{Kg-day}}{\text{mg}}\right) \times 40\text{ days}}{70\text{ Kg} \times 70\text{ yr} \times 365\text{ days/yr}} = \ldots$$

Chloroform

$$\frac{7.7 \times 10^{-6}\text{ mg/day} \times 7 \times 10^{-2}\text{ Kg-day/mg} \times 40\text{ days}}{70\text{ Kg} \times 70\text{ yr} \times 365\text{ days/yr}} = \ldots$$

TCE

$$\frac{1.0 \times 10^{-4}\text{ mg/day} \times \ldots \text{ Kg-day/mg} \times 40\text{ days}}{\ldots} = \ldots$$

PCE

$$\ldots$$

$$= 5.5 \times 10^{-10}$$

$$\frac{4.2 \times 10^{-4}\text{ mg/day} \times 4.34\text{ Kg-day/mg} \times 40\text{ days}}{\ldots} = \ldots$$

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NUS CORPORATION

DATE

CLIENT FILE NO. BY

SUBJECT Checked By

[illegible]

$$\frac{4.7 \times 10^{-8}\ \text{mg/day} \times 2.9 \times 10^{-2}\ \text{Kg-day/mg} \times [illegible]}{70\ \text{Kg} \times 70\ \text{yrs} \times 365\ \text{days/yr}}$$

$$= [illegible] \times 10^{-14}$$

[illegible]

$$\frac{[illegible]\ \text{mg/day} \times 1.75 \times [illegible]\ \text{Kg-day/mg} \times [illegible]}{70\ \text{Kg} \times 70\ \text{yrs} \times 365\ \text{days}}$$

$$= [illegible] \times 10^{-13}$$

[illegible]

$$\frac{4.0 \times 10^{-7}\ \text{mg/day} \times 11.5\ \text{Kg-day/mg} \times 40\ \text{days}}{70\ \text{Kg} \times 70\ \text{yrs} \times 365\ \text{days/yr}}$$

$$= 1.0 \times 10^{-10}$$

Total Risk $= 4.1 \times 10^{-8}$

23/38

CTC 001 1274

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: [illegible]	FILE NO.: 7796	BY: JMP	PAGE OF
SUBJECT: [illegible] - EXCAVATION		CHECKED BY:	DATE:

PROBLEM

ESTIMATE the ambient air concentrations of [illegible] [illegible] in the Central Landfill area. This will involve estimating the emission rate of selected volatile organics [illegible] disturbed soils, and discounting the release rate downwind (100 m) to find the ground level concentration. Particulate vapor releases are not considered.

GIVEN:

The following compounds and their corresponding average concentrations (see concentration in soil [illegible] subsurface soil or wastes) in the A area of the Central Landfill.

Compound	Ave. Concentration (µg/kg)
1,2-dichloroethane	1027
chloroform	391
1,1-dichloroethane	910
1,1,1-trichloroethane	12,658
[illegible]	60,825
[illegible]	28,013
toluene	6451
xylene	9304
ethylbenzene	2207
[illegible]	782
[illegible] chloride	45
benzene	3.2

CTC 001 1275

GIVEN:

From the RI document (Figure 4-20) the excavation area is estimated to be 825' in length, 225' in width for a total area of 185,625 ft² (≈ 172,451,190 cm²)

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT:	FILE NO.:	BY:	PAGE 2 OF
SUBJECT:		CHECKED BY:	DATE:

[illegible] diffusion coefficients of vapors [illegible]

Compound	molecular wt	Diffusion	Cs (g/cm³)
1,2 dichloroethane	97	0.05836	[illegible]
chloroform	119	0.09404	[illegible]
1,1-dichloroethane	99	0.09643	[illegible]
1,1,1-trichloroethane	133	0.0844	[illegible]
trichloroethene	132	0.08236	[illegible]
tetrachloroethene	166	0.07752	[illegible]
toluene	92	0.08301	1.84 × [illegible]
xylene	106	0.07937	[illegible]
chlorobenzene	106	0.07870	[illegible]
phenol	84	0.08924	[illegible]
benzene	78	0.09234	4.9 × 10⁻⁴
methylene chloride	63	0.11375	[illegible]

* Calculated using vapor pressure estimated at 30°C from Lyman [illegible]

Solution:

The following equation was used to estimate the relative releases of toxic contaminants from the soil of the excavation area

$$Q = D C_s A P^{4/3} \frac{M}{d_s} \qquad \text{(Equation 1)}$$

where: Q = emission rate (g/sec)
D = Diffusion coefficient of contaminant in vapor phase soil (cm²/sec)

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
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C_s = saturation vapor concentration (g/cm³)
[illegible] area [illegible]
P = Soil Porosity [illegible] 0.5 [illegible]
d_s = Effective depth of soil cover (cm) – [illegible] cover
M = weight fraction of compound in soil

Assumptions:

The equation based on Fick's Law of Steady State diffusion, assumes that diffusion occurs at a plane surface where concentration remain constant. This equation does not take into account effects of biodegradation, water transport or water-loss, adsorption or production of landfill gas. Therefore [illegible] of these compounds from the soil is the [illegible] better, [illegible] to [illegible] concentration [illegible] measured [illegible]

Results:

Using this equation to calculate the emission rate of trichloroethene as an example reveals:

$$Q = 0.08606 \frac{cm^2}{sec} \times [6.63 \times 10^{-4} g/cm^3] \times 172,451,190 cm^2 \times 0.5^{-1}$$

$$\times 6.08 \times 10^{-5} g/g \times \frac{1}{10 cm} = 0.24 g/sec$$

The calculated values for the remaining compounds are summarized below:

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NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT:	FILE NO.:	BY:	PAGE 4 OF
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Contaminant	Q (g/s)
1,2-dichloroethane	0.011
chloroform	3.9×10^{-3}
1,1-dichloroethane	8.5×10^{-3}
1,1,1-trichloroethane	0.05
trichloroethene	0.24
tetrachloroethene	0.032
toluene	6.7×10^{-3}
xylene	2.9×10^{-3}
ethylbenzene	7.2×10^{-4}
phenol	9.6×10^{-6}
vinyl chloride	3.5×10^{-4}
benzene	9.9×10^{-6}

Atmospheric fate:

The following equation was used to predict the average downwind groundlevel concentration 100 meters from the excavation area:

$$\chi = \frac{Q}{\pi \sigma_y \sigma_z u} \qquad (Eq. 2)$$

where:

χ = groundlevel concentration of a contaminant 100m downwind of the excavation area (g/m³)
Q = Emission rate (g/s)
σ_y = Dispersion coefficient in lateral (crosswind) direction (m)
σ_z = Dispersion coefficient in the vertical direction (m)
u = Windspeed (m/s)
π = 3.141593

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
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Assumptions for the term [illegible] approximation:

- [illegible] stable atmospheric conditions [illegible]
- [illegible] direction is [illegible] and the exposure [illegible] 100% of the time. [illegible] wind direction [illegible] the Southeast [illegible]
- The average wind speed is 12 knots or 6.18 m/s (Savage, 1986)

To effectively model an area source, a virtual point source calculation is performed. This is the point at which a point source would have started to spread into the area of the source under consideration. Use of the virtual point source calculation allows the modeler to disperse contaminants approximating the appropriate standard deviation in the [illegible] direction. The ultimate σ_y used in the calculation then becomes a function of the downwind distance x, plus the virtual distance x_y. From Turners Workbook (1970), the initial standard deviation (σ) in the y direction is given by

$$\sigma_{yo} = S / 4.3$$

where S equals the length of a side of the area (a square area must be assumed). Therefore, for the assumed excavation area (185,625 ft² = 17,245 m²), the length of a side = 131 m. An initial σ_{yo} for a 131 m side = 131/4.3 which equals 30.5 m. The corresponding initial downwind distance to a 30.5 m σ_{yo} (F stability) is 900 meters. Thus, the appropriate σ_y for dispersing contaminants 100 m downwind of the

Savage, J 1986 Essex Co Airport Control Tower Personal Communication

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
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excavated area is the area corresponding to 100 - 900 meters or 34 meters

Because this is a groundlevel source, no virtual point source calculation in the vertical direction is required. Therefore, the σ_z value for a 100m downwind distance will be used or 2.35 meters.

Continuing the TCE example, the groundlevel concentration of TCE, 100 meters downwind for the excavation area is given by:

$$\chi = \frac{0.24\ g/sec}{(3.142)(34)(2.35)(6.18)} = 1.48 \times 10^{-4}\ g/m^3 = 0.15\ mg/m^3$$

The results for the remaining contaminants are summarized below:

Contaminant	mg/m^3
1,2-dichloroethene	7.1×10^{-3}
Chloroform	2.5×10^{-3}
1,1-dichloroethane	5.5×10^{-3}
1,1,1-trichloroethane	0.053
Trichloroethene	0.15
tetrachloroethene	0.021
toluene	4.3×10^{-3}
xylene	1.9×10^{-3}
ethylbenzene	4.6×10^{-4}
phenol	6.2×10^{-6}
vinyl chloride	2.2×10^{-4}
benzene	6.4×10^{-6}

CTC 001 1280

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NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT:	FILE NO.:	BY:	PAGE OF
SUBJECT:		CHECKED BY:	DATE:

To estimate the health risks associated with inhalation during [illegible] assume:

- inhalation of 20 m^3/day and [illegible] = 6.66 m^3 of air inhaled per day
- assume 45 day excavation period

Incremental risk is calculated using the following equation

$$Risk = \frac{q \times mg/m^3 \times 6.66\ m^3/day \times 45\ days}{70\ kg \times 70\ yr \times 365\ days/yr}$$

where q = potency index $(mg/kg\text{-}day)^{-1}$

Risks for known or suspected carcinogens can be calculated as follows:

Contaminant	Concentration (mg/m^3)	q	Risk
Chloroform	2.5×10^{-3}	7×10^{-2}	2.6×10^{-6}
trichloroethene	0.15	1.2×10^{-2}	2.7×10^{-7}
tetrachloroethene	0.021	5×10^{-2}	1.3×10^{-7}
vinylchloride	2.2×10^{-4}	1.75×10^{-2}	5.7×10^{-10}
benzene	6.4×10^{-6}	2.9×10^{-2}	2.8×10^{-7}
		Total risk	4.7×10^{-7}

To estimate the potential for adverse non carcinogenic health impact, ACGIH Threshold limit values (TLVs) (8-hr time weighted averages) are used as a comparison. The following table compares estimated concentrations to TLVs

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NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT:	FILE NO.:	BY:	PAGE OF
SUBJECT:		CHECKED BY:	DATE:

Compound	Conc (mg/m³)	TLV (mg/m³)
1,2-dichlorobenzene	[illegible] $\times 10^{-5}$	790
1,4-dichlorobenzene	5.5×10^{-3}	810
1,2,4-trichlorobenzene	0.15	1900
Toluene	4.3×10^{-3}	375
Xylenes	1.9×10^{-3}	435
[illegible]	4.6×10^{-4}	435
phenol	6.2×10^{-6}	19

To estimate the potential for adverse impacts from exposures to multiple substances, concentrations, a hazard index is calculated. The hazard index is the sum of the ratios of the [illegible] divided by the acceptable concentration. The hazard index for [illegible] is 5.4×10^{-5}. Consequently, adverse health impacts are not expected.

CTC 001 1282

B

CTC 001 1283

APPENDIX B

COSTING

CTC 001 1284

PRICING SHEET

PAGE NO 1 OF 1 PAGE

NAME: Caldwell Trucking
ARCH OR CONTRACTOR: NUS PEC
ESTIMATE NO: $796.16
LOCATION: Essex Co. New Jersey
TYPE OF WORK: Costs for Treat of Well 7. By Air Stripping
ESTIMATED BY: Malcolm Pirnie M. P. Inc.
PRICED BY:
EXTENDED BY: DFM
CHECKED BY: DFM
DATE: 4/28/86

DESCRIPTION	QUAN.					EXTENSION
Packed Column						
Capital Cost (1983)					245000	
Capital Cost (1986)	1.037				265000	275000
Annual Cost (operating)						
(1983)					12000	
(1986)	1.037				12000	12440
30 year Present Worth Cost						
275,000 + 9.4269 (12,440)						392270
	1/95	TOTALS				

CTC 001 1285

COST SUMMARY
CALDWELL TRUCKING
OPERABLE UNIT 2 - RAA 3 NO ACTION WITH MONITORING

DIRECT CAPITAL COSTS

ITEM	LOW	BASE	HIGH
* No Capital Costs Associated with No Action Alternative.			
TOTALS			

****

PRESENT WORTH ANALYSIS

LOW	BASE	HIGH
	332,000	

****

ANNUAL OPERATING & MAINTENANCE COSTS

ITEM	QTY	UNIT	UNIT COST	ITEM COST	FREQUENCY	NOTES
Monitoring						
Sampling				8160	1 - 30	Quarterly
Analysis				25200	1 - 30	Quarterly
Reporting				1680	1 - 30	Quarterly
TOTAL ANNUAL COSTS				35040		

2/95

CTC 001 1286

SITE: CALDWELL TRUCKING
ALTERNATIVE NO.: 3 NO ACTION WITH MONITORING
332

PRESENT WORTH ANALYSIS

COST/YEAR COST OCCURS ($000'S)

COST COMPONENT	0	1	2	3	4	5	6	7	8	9	10	11
1. CAPITAL COST	0											
2. O & M COSTS	---	0										
3. ANNUAL COSTS	0	35	35	35	35	35	35	35	35	35	35	35
4. ANNUAL DISCOUNT RATE=10%	1	.909	.826	.751	.683	.621	.564	.513	.467	.424	.386	.35
PRESENT WORTH =	0	32	29	26	24	22	20	18	16	15	14	14

	12	13	14	15	16	17	18	19	20	21	22	23
O & M COSTS	35	35	35	35	35	35	35	35	35	35	35	35
ANNUAL DISCOUNT RATE=10%	.319	.29	.263	.239	.218	.198	.18	.164	.149	.135	.123	.112
PRESENT WORTH =	11	10	9	8	8	7	6	6	5	5	4	4

	24	25	26	27	28	29	30	TOTAL PRESENT WORTH (000'S)
O & M COSTS	35	35	35	35	35	35	35	
ANNUAL DISCOUNT RATE=10%	.101	.092	.084	.076	.069	.063	.057	
PRESENT WORTH =	4	3	3	3	2	2	2	332

228.55
84.035
18.97

3/49

CTC 001 1287

COST SUMMARY
CALDWELL TRUCKING
OCCBAPLT UNIT 2 - BAA 4 ALTERNATE WATER SUPPLY

DIRECT CAPITAL COSTS

ITEM	LOW	BASE	HIGH
Alt. Water Supply	223,071	269,480	292,685
TOTALS	223,071	269,480	292,685

****

PRESENT WORTH ANALYSIS

LOW	BASE	HIGH
223,071	269,480	292,685

****

4/45

CTC 001 1288

CALDWELL TRUCKING
Operable Unit 2 BAA4 Alternate Water Supply

(BAA4AWSH)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Tap-In	100	LS		396.00	594.00			39600	59400		99000	
Existing Well Sealing	90	GAL	250.00				22500				22500	
							22500	39600	59400	0	121500	
Working Level D .15									8910	0	8910	
							22500	39600	68310	0	130410	
Burden @ 13% of Labor Cost									8880		8880	
Labor @ 15% of Labor Cost									10247		10247	
Material @ 5% of Material Cost								1980			1980	
Subcontract @ 10% of Sub. Cost							2250				2250	
Total Direct Cost							24750	41580	87437	0	153767	
Indirects @ 50% of Total Direct Labor Cost									43718		43718	
Profit @ 10% Total Direct Cost											15377	
											212862	
Health & Safety Monitoring @ .1											21286	
Total Field Cost											234148	
Contingency @ 20% of Total Field Cost											46830	
Engineering @ 5% of Total Field Cost											11707	
TOTAL COST THIS PAGE											292685	

5/95

CTC 001 1289

CALDWELL TRUCKING
Operable Unit 2 - RAA4 Alternate Water Supply

(RAA4AWS)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Tap In	100	LS		360.00	540.00			36000	54000		90000	
Existing Well Sealing	90	GAL	250.00				22500				22500	
							22500	36000	54000	0	112500	
Working Level D .1%									8100	0	8100	
							22500	36000	62100	0	120600	
Burden @ 13% of Labor Cost									8073		8073	
Labor @ 15% of Labor Cost									9315		9315	
Material @ 5% of Material Cost								1800			1800	
Subcontract @ 10% of Sub. Cost							2250				2250	
Total Direct Cost							24750	37800	79488	0	142038	
Indirects @ 50% of Total Direct Labor Cost									39744		39744	
Profit @ 10% Total Direct Cost											14204	
											195986	
Health & Safety Monitoring @ .1											19599	
Total Field Cost											215584	
Contingency @ 20% of Total Field Cost											43117	
Engineering @ 5% of Total Field Cost											10779	
TOTAL COST THIS PAGE											269480	

6/45

CTC 001 1290

CALDWELL TRUCKING
Operable Unit 2 RAA4 Alternate Water Supply

(RAA4AWSL)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Tap-In	100	LS		288.00	432.00			28800	43200		72000	
Existing Well Sealing	90	GAL	250.00				22500				22500	
							22500	28800	43200	0	94500	
Working Level D - .15									6480	0	6480	
							22500	28800	49680	0	100980	
Burden @ 13% of Labor Cost									6458		6458	
Labor @ 15% of Labor Cost									7452		7452	
Material @ 5% of Material Cost								1440			1440	
Subcontract @ 10% of Sub. Cost							2250				2250	
Total Direct Cost							24750	30240	63590	0	118580	
Indirects @ 50% of Total Direct Labor Cost									31795		31795	
Profit @ 10% Total Direct Cost											11858	
											162234	
Health & Safety Monitoring @ .1											16223	
Total Field Cost											178457	
Contingency @ 20% of Total Field Cost											35691	
Engineering @ 5% of Total Field Cost											8923	
TOTAL COST THIS PAGE											223071	

COST SUMMARY
CALDWELL TRUCKING
OPERABLE UNIT 3 - RAA 6 SURFACE CAPPING

DIRECT CAPITAL COSTS

ITEM	LOW	BASE	HIGH
Task 1	13,244	18,920	28,330
Task 2	138,726	168,652	220,091
Task 3	90,165	112,707	146,519
Task 4	260,631	330,508	446,921
Task 5	109,698	109,698	109,698
TOTALS	612,464	740,485	951,609

****

PRESENT WORTH ANALYSIS

LOW	BASE	HIGH
783,000	911,000	1,123,000

****

ANNUAL OPERATING & MAINTENANCE COSTS

ITEM	QTY	UNIT	UNIT COST	ITEM COST	FREQUENCY	NOTES
Inspect & Repair Soil Cap	1	LS	---	3,320	1 - 30	2 men for 3 days @ $35/hr plus 3% of Direct Unit Cost of Cap.
Inspect & Repair Multimedia Cap	1	LS	---	6,400	1 - 30	2 men for 2 days @ $35/hr plus 3% of Direct Unit Cost of Cap.
Obtain & Analyze Groundwater Sam.	8	Samples	1050	8,400	1 - 30	4 MW's sampled semi-annually for HSL substances.
TOTAL ANNUAL COSTS				18120		

8/95

SITE: CALDWELL TRUCKING
ALTERNATIVE NO.: 6
911

PRESENT WORTH ANALYSIS

COST/YEAR COST OCCURS ($000'S)

COST COMPONENT	0	1	2	3	4	5	6	7	8	9	10	11
1. CAPITAL COST	740											
2. O & M COSTS	---	18										
3. ANNUAL COSTS	740	18	18	18	18	18	18	18	18	18	18	18
4. ANNUAL DISCOUNT RATE=10%	1	.909	.826	.751	.683	.621	.564	.513	.467	.424	.386	.35
PRESENT WORTH =	740	16	15	14	12	11	10	9	8	8	7	7

	12	13	14	15	16	17	18	19	20	21	22	23
O & M COSTS	18	18	18	18	18	18	18	18	18	18	18	18
ANNUAL DISCOUNT RATE=10%	.319	.29	.263	.239	.218	.198	.18	.164	.149	.135	.123	.112
PRESENT WORTH =	6	5	5	4	4	4	3	3	3	2	2	2

	24	25	26	27	28	29	30	TOTAL PRESENT WORTH (000'S)
O & M COSTS	18	18	18	18	18	18	18	
ANNUAL DISCOUNT RATE=10%	.101	.092	.084	.076	.069	.063	.057	
PRESENT WORTH =	2	2	2	1	1	1	1	911

857.54
43.218
9.756

9/95

CTC 001 1293

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA6T1)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1	LS			1800.00	1500.00			1800	1500	3300	
Haul to Trmt. Facility	600	MI	4.00				2400				2400	
Disposal	19500	GAL	.20				3900				3900	
							6300	0	1800	1500	9600	
Working Level D = .15									270	225	495	
							6300	0	2070	1725	10095	
Burden @ 13% of Labor Cost									269		269	
Labor @ 15% of Labor Cost									311		311	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							630				630	
Total Direct Cost							6930	0	2650	1725	11305	
Indirects @ 50% of Total Direct Labor Cost									1325		1325	
Profit @ 10% Total Direct Cost											1130	
											13760	
Health & Safety Monitoring @ .1											1376	
Total Field Cost											15136	
Contingency @ 20% of Total Field Cost											3027	
Engineering @ 5% of Total Field Cost											757	
TOTAL COST THIS PAGE											18920	

10/95

CTC 001 1294

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA6T1LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	.7	LS			1800.00	1500.00			1260	1050	2310	
Haul to Trmt. Facility	420	MI	4.00				1680				1680	
Disposal	13650	GAL	.20				2730				2730	
							4410	0	1260	1050	6720	
Working Level D = .15									189	158	347	
							4410	0	1449	1208	7067	
Burden @ 13% of Labor Cost									188		188	
Labor @ 15% of Labor Cost									217		217	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							441				441	
Total Direct Cost							4851	0	1855	1208	7913	
Indirects @ 50% of Total Direct Labor Cost									927		927	
Profit @ 10% Total Direct Cost											791	
											9632	
Health & Safety Monitoring @ .1											963	
Total Field Cost											10595	
Contingency @ 20% of Total Field Cost											2119	
Engineering @ 5% of Total Field Cost											530	
TOTAL COST THIS PAGE											13244	

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CTC 001 1295

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA6T1HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1.5	LS			1800.00	1500.00			2700	2250	4950	
Haul to Trmt. Facility	900	MI	4.00				3600				3600	
Disposal	29250	GAl	.20				5850				5850	
							9450	0	2700	2250	14400	
Working Level D = .15									405	338	743	
							9450	0	3105	2588	15143	
Burden @ 13% of Labor Cost									404		404	
Labor @ 15% of Labor Cost									466		466	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							945				945	
Total Direct Cost							10395	0	3974	2588	16957	
Indirects @ 50% of Total Direct Labor Cost									1987		1987	
Profit @ 10% Total Direct Cost											1696	
											20640	
Health & Safety Monitoring @ .1											2064	
Total Field Cost											22704	
Contingency @ 20% of Total Field Cost											4541	
Engineering @ 5% of Total Field Cost											1135	
TOTAL COST THIS PAGE											28380	

12/95

CTC 001 1296

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA6T2)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1	LS			8750.00	4550.00			8750	4550	13300	
Hauling	1600	MI	4.00				6400				6400	
Disposal	6320	CF	8.00				50560				50560	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							56960	872	17500	9100	84432	
Working Level D = .15									2625	1365	3990	
							56960	872	20125	10465	88422	
Burden @ 13% of Labor Cost									2616		2616	
Labor @ 15% of Labor Cost									3019		3019	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							5696				5696	
Total Direct Cost							62656	915	25760	10465	99796	
Indirects @ 50% of Total Direct Labor Cost									12880		12880	
Profit @ 10% Total Direct Cost											9980	
											122656	
Health & Safety Monitoring @ .1											12266	
Total Field Cost											134921	
Contingency @ 20% of Total Field Cost											26984	
Engineering @ 5% of Total Field Cost											6746	
TOTAL COST THIS PAGE											168652	

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA6T2LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	.9	LS			8750.00	4550.00			7875	4095	11970	
Hauling	1440	MI	4.00				5760				5760	
Disposal	4424	CF	8.00				35392				35392	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							41152	872	16625	8645	67294	
Working Level D = .15									2494	1297	3791	
							41152	872	19119	9942	71084	
Burden @ 13% of Labor Cost									2485		2485	
Labor @ 15% of Labor Cost									2868		2868	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							4115				4115	
Total Direct Cost							45267	915	24472	9942	80596	
Indirects @ 50% of Total Direct Labor Cost									12236		12236	
Profit @ 10% Total Direct Cost											8060	
											100892	
Health & Safety Monitoring @ .1											10089	
Total Field Cost											110981	
Contingency @ 20% of Total Field Cost											22196	
Engineering @ 5% of Total Field Cost											5549	
TOTAL COST THIS PAGE											138726	

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CTC 001 1298

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA6T2HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1.2	LS			8750	4550			10500	5460	15960	
Hauling	1920	MI	4.00				7680				7680	
Disposal	9480	CF	8.00				75840				75840	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							83520	872	19250	10010	113652	
Working Level D = .15									2888	1502	4389	
							83520	872	22138	11512	118041	
Burden @ 13% of Labor Cost									2878		2878	
Labor @ 15% of Labor Cost									3321		3321	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							8352				8352	
Total Direct Cost							91872	915	28336	11512	132635	
Indirects @ 50% of Total Direct Labor Cost									14168		14168	
Profit @ 10% Total Direct Cost											13263	
											160066	
Health & Safety Monitoring @ .1											16007	
Total Field Cost											176073	
Contingency @ 20% of Total Field Cost											35215	
Engineering @ 5% of Total Field Cost											8804	
TOTAL COST THIS PAGE											220091	

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 3 - Soil Cap over Contaminated Surface Soil Areas
(RAA6T3)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
SOIL CAP												
Site Grading	1990	CY			1.73	1.66			3443	3303	6746	
Soil Cap (18")	2980	CY		1.50	2.36	7.07		4470	7033	21069	32571	
Topsoil (6")	994	CY		6.00	2.36	7.07		5964	2346	7028	15337	
							0	10434	12821	31400	54655	
Working Level D = .15									1923	4710	6633	
							0	10434	14745	36110	61288	
Burden @ 13% of Labor Cost									1917		1917	
Labor @ 15% of Labor Cost									2212		2212	
Material @ 5% of Material Cost								522			522	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	10956	18873	36110	65938	
Indirects @ 50% of Total Direct Labor Cost									9437		9437	
Profit @ 10% Total Direct Cost											6594	
											81969	
Health & Safety Monitoring @ .1											8197	
Total Field Cost											90165	
Contingency @ 20% of Total Field Cost											18033	
Engineering @ 5% of Total Field Cost											4508	
TOTAL COST THIS PAGE											112707	

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 3 - Soil Cap over Contaminated Surface Soil Areas
(RAA6T3HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
SOIL CAP												
Site Grading	2587	CY			1.73	1.66			4476	4294	8770	
Soil Cap (18")	3874	CY		1.50	2.36	7.07		5811	9143	27399	42343	
Topsoil (6")	1292	CY		6.00	2.36	7.07		7752	3049	9134	19936	
							0	13563	16667	40818	71048	
Working Level D = .15									2500	6123	8623	
							0	13563	19167	46941	79671	
Burden @ 13% of Labor Cost									2492		2492	
Labor @ 15% of Labor Cost									2875		2875	
Material @ 5% of Material Cost								678			678	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	14241	24534	46941	85716	
Indirects @ 50% of Total Direct Labor Cost									12267		12267	
Profit @ 10% Total Direct Cost											8572	
											106555	
Health & Safety Monitoring @ .1											10655	
Total Field Cost											117210	
Contingency @ 20% of Total Field Cost											23442	
Engineering @ 5% of Total Field Cost											5861	
TOTAL COST THIS PAGE											146513	

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CTC 001 1301

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 3 - Soil Cap over Contaminated Surface Soil Areas
(RAA6T3LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
SOIL CAP												
Site Grading	1592	CY			1.73	1.66			2754	2643	5397	
Soil Cap (18")	2384	CY		1.50	2.36	7.07		3576	5626	16855	26057	
Topsoil (6")	795	CY		6.00	2.36	7.07		4770	1876	5621	12267	
							0	8346	10257	25118	43721	
Working Level D = .15									1538	3768	5306	
							0	8346	11795	28886	49027	
Burden @ 13% of Labor Cost									1533		1533	
Labor @ 15% of Labor Cost									1769		1769	
Material @ 5% of Material Cost								417			417	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	8763	15098	28886	52747	
Indirects @ 50% of Total Direct Labor Cost									7549		7549	
Profit @ 10% Total Direct Cost											5275	
											65571	
Health & Safety Monitoring @ .1											6557	
Total Field Cost											72128	
Contingency @ 20% of Total Field Cost											14426	
Engineering @ 5% of Total Field Cost											3606	
TOTAL COST THIS PAGE											90160	

18/95

CTC 001 1302

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 4 - Installation of Multimedia Cap
(RAA6T4)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
MULTIMEDIA CAP												
Site Grading/Compacting	1570	CY			1.73	1.66			2716	2606	5322	
Clay - 36" installed	4720	CY		9.00	2.01	5.75		42480	9487	27140	79107	
30 mil FML - installed	42500	SF	.50				21250				21250	
Granular Mat (sand/gravel)	1570	CY		7.50	2.36	7.07		11775	3705	11100	26580	
Filter Fabric	4720	SY		1.00	.20			4720	944		5664	
Soil (18") - installed	2360	CY		1.50	2.36	7.07		3540	5570	16685	25795	
Topsoil (6") - installed	787	CY		6.00	2.36	7.07		4722	1857	5564	12143	
							21250	67237	24279	63095	175862	
Working Level D = .15									3642	9464	13106	
							21250	67237	27921	72560	188968	
Burden @ 13% of Labor Cost									3630		3630	
Labor @ 15% of Labor Cost									4188		4188	
Material @ 5% of Material Cost								3362			3362	
Subcontract @ 10% of Sub. Cost							2125				2125	
Total Direct Cost							23375	70599	35739	72560	202273	
Indirects @ 50% of Total Direct Labor Cost									17870		17870	
Profit @ 10% Total Direct Cost											20227	
											240370	
Health & Safety Monitoring @ .1											24037	
Total Field Cost											264407	
Contingency @ 20% of Total Field Cost											52881	
Engineering @ 5% of Total Field Cost											13220	
TOTAL COST THIS PAGE											330508	

14/95

CTC 001 1303

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 4 - Installation of Multimedia Cap
(RAA6T4LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
MULTIMEDIA CAP												
Site Grading/Compacting	1413	CY			1.73	1.66			2444	2346	4790	
Clay - 36" installed	3304	CY		9.00	2.01	5.75		29736	6641	18998	55375	
30 mil FML - installed	34000	SF	.50				17000				17000	
Granular Mat (sand/gravel)	1413	CY		7.50	2.36	7.07		10598	3335	9990	23922	
Filter Fabric	4720	SY		1.00	.20			4720	944		5664	
Soil (18") - installed	1888	CY		1.50	2.36	7.07		2832	4456	13348	20636	
Topsoil (6") - installed	708	CY		6.00	2.36	7.07		4248	1671	5006	10924	
							17000	52134	19491	49687	138311	
Working Level D = .15									2924	7453	10377	
							17000	52134	22414	57140	148688	
Burden @ 13% of Labor Cost									2914		2914	
Labor @ 15% of Labor Cost									3362		3362	
Material @ 5% of Material Cost								2607			2607	
Subcontract @ 10% of Sub. Cost							1700				1700	
Total Direct Cost							18700	54740	28690	57140	159271	
Indirects @ 50% of Total Direct Labor Cost									14345		14345	
Profit @ 10% Total Direct Cost											15927	
											189543	
Health & Safety Monitoring @ .1											18954	
Total Field Cost											208497	
Contingency @ 20% of Total Field Cost											41699	
Engineering @ 5% of Total Field Cost											10425	
TOTAL COST THIS PAGE											260622	

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 4 - Installation of Multimedia Cap
(RAA6T4HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
MULTIMEDIA CAP												
Site Grading/Compacting	1884	CY			1.73	1.66			3259	3127	6387	
Clay - 36" installed	7080	CY		9.00	2.01	5.75		63720	14231	40710	118661	
30 mil FML - installed	55250	SF	.50				27625				27625	
Granular Mat (sand/gravel)	1884	CY		7.50	2.36	7.07		14130	4446	13320	31896	
Filter Fabric	4720	SY		1.00	.20			4720	944		5664	
Soil (18") - installed	3068	CY		1.50	2.36	7.07		4602	7240	21691	33533	
Topsoil (6") - installed	944	CY		6.00	2.36	7.07		5664	2228	6674	14566	
							27625	92836	32349	85522	238332	
Working Level D = .15									4852	12828	17681	
							27625	92836	37201	98350	256012	
Burden @ 13% of Labor Cost									4836		4836	
Labor @ 15% of Labor Cost									5580		5580	
Material @ 5% of Material Cost								4642			4642	
Subcontract @ 10% of Sub. Cost							2763				2763	
Total Direct Cost							30388	97478	47617	98350	273833	
Indirects @ 50% of Total Direct Labor Cost									23809		23809	
Profit @ 10% Total Direct Cost											27383	
											325025	
Health & Safety Monitoring @ .1											32502	
Total Field Cost											357527	
Contingency @ 20% of Total Field Cost											71505	
Engineering @ 5% of Total Field Cost											17876	
TOTAL COST THIS PAGE											446909	

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CTC 001 1305

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
TASK 5 - Site Prep
(RAA6T5)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
E & S CONTROLS												
Revegetation	329.2	MSF		24.60	5.60	4.45		8098	1844	1465	11407	
Silt Fence	4000	LF		2.30	.27			9200	1080		10280	
Chain Link Fence - 6'	4000	LF	10.55				42200				42200	
							42200	17298	2924	1465	63887	
Working Level D = .15									439	220	658	
							42200	17298	3362	1685	64545	
Burden @ 13% of Labor Cost									437		437	
Labor @ 15% of Labor Cost									504		504	
Material @ 5% of Material Cost								865			865	
Subcontract @ 10% of Sub. Cost							4220				4220	
Total Direct Cost							46420	18163	4303	1685	70571	
Indirects @ 50% of Total Direct Labor Cost									2152		2152	
Profit @ 10% Total Direct Cost											7057	
											79780	
Health & Safety Monitoring @ .1											7978	
Total Field Cost											87758	
Contingency @ 20% of Total Field Cost											17552	
Engineering @ 5% of Total Field Cost											4388	
TOTAL COST THIS PAGE											109698	

22/95

CTC 001 1306

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
OPTION A - Offsite Disposal of Contaminated Surface Soils
(RAA6OPA)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
OFFSITE DISPOSAL												
Hauling	40000	MI	4.00				160000				160000	
Disposal	2990	MI	200.00				598000				598000	
Clean Backfill (installed)	1990	CY		1.50	2.36	7.07		2985	4696	14069	21751	
TANK EXCAV. AREA												
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	1371	4108	6350	
							758000	3857	6068	18177	786101	
Working Level D = .15									910	2727	3637	
							758000	3857	6978	20904	789738	
Burden @ 13% of Labor Cost									907		907	
Labor @ 15% of Labor Cost									1047		1047	
Material @ 5% of Material Cost								193			193	
Subcontract @ 10% of Sub. Cost							75800				75800	
Total Direct Cost							833800	4049	8931	20904	867684	
Indirects @ 50% of Total Direct Labor Cost									4466		4466	
Profit @ 10% Total Direct Cost											86768	
											958918	
Health & Safety Monitoring @ .1											95892	
Total Field Cost											1054810	
Contingency @ 20% of Total Field Cost											210962	
Engineering @ 5% of Total Field Cost											52741	
TOTAL COST THIS PAGE											1318513	

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
OPTION A - Offsite Disposal of Contaminated Surface Soils
(RAA6OPAL)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
OFFSITE DISPOSAL												
Hauling	28000	MI	4.00				112000				112000	
Disposal	2093	MI	200.00				418600				418600	
Clean Backfill (installed)	1393	CY		1.50	2.36	7.07		2090	3287	9849	15225	
TANK EXCAV. AREA												
Clean Backfill (installed)	523	CY		1.50	2.36	7.07		785	1234	3698	5716	
							530600	2874	4522	13546	551542	
Working Level D = .15									678	2032	2710	
							530600	2874	5200	15578	554252	
Burden @ 13% of Labor Cost									676		676	
Labor @ 15% of Labor Cost									780		780	
Material @ 5% of Material Cost								144			144	
Subcontract @ 10% of Sub. Cost							53060				53060	
Total Direct Cost							583660	3018	6656	15578	608912	
Indirects @ 50% of Total Direct Labor Cost									3328		3328	
Profit @ 10% Total Direct Cost											60891	
											673131	
Health & Safety Monitoring @ .1											67313	
Total Field Cost											740444	
Contingency @ 20% of Total Field Cost											148089	
Engineering @ 5% of Total Field Cost											37022	
TOTAL COST THIS PAGE											925555	

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CTC 001 1308

CALDWELL TRUCKING
Operable Unit 3 - RAA6 Surface Capping
OPTION A - Offsite Disposal of Contaminated Surface Soils
(RAA6OPAH)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
OFFSITE DISPOSAL												
Hauling	60000	MI	4.00				240000				240000	
Disposal	4485	MI	200.00				897000				897000	
Clean Backfill (installed)	2985	CY		1.50	2.36	7.07		4478	7045	21104	32626	
TANK EXCAV. AREA												
Clean Backfill (installed)	697.2	CY		1.50	2.36	7.07		1046	1645	4929	7620	
							1137000	5523	8690	26033	1177246	
Working Level D = .15									1303	3905	5208	
							1137000	5523	9993	29938	1182455	
Burden @ 13% of Labor Cost									1299		1299	
Labor @ 15% of Labor Cost									1499		1499	
Material @ 5% of Material Cost								276			276	
Subcontract @ 10% of Sub. Cost							113700				113700	
Total Direct Cost							1250700	5799	12792	29938	1299229	
Indirects @ 50% of Total Direct Labor Cost									6396		6396	
Profit @ 10% Total Direct Cost											129923	
											1435548	
Health & Safety Monitoring @ .1											143555	
Total Field Cost											1579103	
Contingency @ 20% of Total Field Cost											315821	
Engineering @ 5% of Total Field Cost											78955	
TOTAL COST THIS PAGE											1973879	

25/45

CTC 001 1309

COST SUMMARY
CALDWELL TRUCKING
OPERABLE UNIT 3 - RAA 7 Excavation of Contaminated Materials and Disposal in an EPA Approved Landfill

DIRECT CAPITAL COSTS

ITEM	LOW	BASE	HIGH
Task 1	13,244	18,920	28,380
Task 2	138,726	168,652	220,091
Task 3	656,172	1,288,484	1,932,726
Task 4	8,460,865	16,602,453	24,903,679
Task 5	109,698	109,698	109,698
TOTALS	9,378,705	18,188,207	27,194,574

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PRESENT WORTH ANALYSIS

LOW	BASE	HIGH
9,625,000	18,434,000	27,441,000

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ANNUAL OPERATING & MAINTENANCE COSTS

ITEM	QTY	UNIT	UNIT COST	ITEM COST	FREQUENCY	NOTES
Annual Inspection & Repair to Site	1	LS	---	17,800	1 - 30	2 men for 5 days @ $35/hr plus 5% of Direct Capital Costs for Backfill and Revegetation.
Sampling & Analysis of Groundwater	8	Samples	1050	8,400	1 - 30	4 MW's semi-annual sampling for HSL compounds.
TOTAL ANNUAL COSTS				26200		

26/45

CTC 001 1310

SITE: CALDWELL TRUCKING
ALTERNATIVE NO.: 7
18434

PRESENT WORTH ANALYSIS

COST/YEAR COST OCCURS ($000'S)

COST COMPONENT	0	1	2	3	4	5	6	7	8	9	10	11
1. CAPITAL COST	18188											
2. O & M COSTS	---	26										
3. ANNUAL COSTS	18188	26	26	26	26	26	26	26	26	26	26	26
4. ANNUAL DISCOUNT RATE=10%	1	.909	.826	.751	.683	.621	.564	.513	.467	.424	.386	.35
PRESENT WORTH =	18188	24	21	20	18	16	15	13	12	11	10	10

	12	13	14	15	16	17	18	19	20	21	22	23
O & M COSTS	26	26	26	26	26	26	26	26	26	26	26	26
ANNUAL DISCOUNT RATE=10%	.319	.29	.263	.239	.218	.198	.18	.164	.149	.135	.123	.112
PRESENT WORTH =	8	8	7	6	6	5	5	4	4	4	3	3

	24	25	26	27	28	29	30	TOTAL PRESENT WORTH (000'S)
O & M COSTS	26	26	26	26	26	26	26	
ANNUAL DISCOUNT RATE=10%	.101	.092	.084	.076	.069	.063	.057	
PRESENT WORTH =	3	2	2	2	2	2	1	18434

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CTC 001 1311

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA7T1)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1	LS			1800.00	1500.00			1800	1500	3300	
Haul to Trmt. Facility	600	MI	4.00				2400				2400	
Disposal	19500	GAL	.20				3900				3900	
							6300	0	1800	1500	9600	
Working Level D = .15									270	225	495	
							6300	0	2070	1725	10095	
Burden @ 13% of Labor Cost									269		269	
Labor @ 15% of Labor Cost									311		311	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							630				630	
Total Direct Cost							6930	0	2650	1725	11305	
Indirects @ 50% of Total Direct Labor Cost									1325		1325	
Profit @ 10% Total Direct Cost											1130	
											13760	
Health & Safety Monitoring @ .1											1376	
Total Field Cost											15136	
Contingency @ 20% of Total Field Cost											3027	
Engineering @ 5% of Total Field Cost											757	
TOTAL COST THIS PAGE											18920	

CTC 001 1312

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA7T1LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	.7	LS			1800.00	1500.00			1260	1050	2310	
Haul to Trmt. Facility	420	MI	4.00				1680				1680	
Disposal	13650	GAL	.20				2730				2730	
							4410	0	1260	1050	6720	
Working Level D = .15									189	158	347	
							4410	0	1449	1208	7067	
Burden @ 13% of Labor Cost									188		188	
Labor @ 15% of Labor Cost									217		217	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							441				441	
Total Direct Cost							4851	0	1855	1208	7913	
Indirects @ 50% of Total Direct Labor Cost									927		927	
Profit @ 10% Total Direct Cost											791	
											9632	
Health & Safety Monitoring @ .1											963	
Total Field Cost											10595	
Contingency @ 20% of Total Field Cost											2119	
Engineering @ 5% of Total Field Cost											530	
TOTAL COST THIS PAGE											13244	

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CTC 001 1313

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA7T1HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1.5	LS			1800.00	1500.00			2700	2250	4950	
Haul to Trmt. Facility	900	MI	4.00				3600				3600	
Disposal	29250	GAl	.20				5850				5850	
							9450	0	2700	2250	14400	
Working Level D = .15									405	338	743	
							9450	0	3105	2588	15143	
Burden @ 13% of Labor Cost									404		404	
Labor @ 15% of Labor Cost									466		466	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							945				945	
Total Direct Cost							10395	0	3974	2588	16957	
Indirects @ 50% of Total Direct Labor Cost									1987		1987	
Profit @ 10% Total Direct Cost											1696	
											20640	
Health & Safety Monitoring @ .1											2064	
Total Field Cost											22704	
Contingency @ 20% of Total Field Cost											4541	
Engineering @ 5% of Total Field Cost											1135	
TOTAL COST THIS PAGE											28380	

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CTC 001 1314

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA7T2)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1	LS			8750.00	4550.00			8750	4550	13300	
Hauling	1600	MI	4.00				6400				6400	
Disposal	6320	CF	8.00				50560				50560	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							56960	872	17500	9100	84432	
Working Level D = .15									2625	1365	3990	
							56960	872	20125	10465	88422	
Burden @ 13% of Labor Cost									2616		2616	
Labor @ 15% of Labor Cost									3019		3019	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							5696				5696	
Total Direct Cost							62656	915	25760	10465	99796	
Indirects @ 50% of Total Direct Labor Cost									12880		12880	
Profit @ 10% Total Direct Cost											9980	
											122656	
Health & Safety Monitoring @ .1											12266	
Total Field Cost											134921	
Contingency @ 20% of Total Field Cost											26984	
Engineering @ 5% of Total Field Cost											6746	
TOTAL COST THIS PAGE											168652	

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CTC 001 1315

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA7T2LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	.9	LS			8750.00	4550.00			7875	4095	11970	
Hauling	1440	MI	4.00				5760				5760	
Disposal	4424	CF	8.00				35392				35392	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							41152	872	16625	8645	67294	
Working Level D = .15									2494	1297	3791	
							41152	872	19119	9942	71084	
Burden @ 13% of Labor Cost									2485		2485	
Labor @ 15% of Labor Cost									2868		2868	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							4115				4115	
Total Direct Cost							45267	915	24472	9942	80596	
Indirects @ 50% of Total Direct Labor Cost									12236		12236	
Profit @ 10% Total Direct Cost											8060	
											100892	
Health & Safety Monitoring @ .1											10089	
Total Field Cost											110981	
Contingency @ 20% of Total Field Cost											22196	
Engineering @ 5% of Total Field Cost											5549	
TOTAL COST THIS PAGE											138726	

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CTC 001 1316

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA7T2HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1.2	LS			8750	4550			10500	5460	15960	
Hauling	1920	MI	4.00				7680				7680	
Disposal	9480	CF	8.00				75840				75840	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							83520	872	19250	10010	113652	
Working Level D = .15									2888	1502	4389	
							83520	872	22138	11512	118041	
Burden @ 13% of Labor Cost									2878		2878	
Labor @ 15% of Labor Cost									3321		3321	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							8352				8352	
Total Direct Cost							91872	915	28336	11512	132635	
Indirects @ 50% of Total Direct Labor Cost									14168		14168	
Profit @ 10% Total Direct Cost											13263	
											160066	
Health & Safety Monitoring @ .1											16007	
Total Field Cost											176073	
Contingency @ 20% of Total Field Cost											35215	
Engineering @ 5% of Total Field Cost											8804	
TOTAL COST THIS PAGE											220091	

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CTC 001 1317

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 3 - Excavation Contaminated Surface Soils
(RAA7T3)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	1990	CY			1.93	1.64			3841	3264	7104	
Hauling	39800	MI	4.00				159200				159200	
Disposal	2960	TONS	200.00				592000				592000	
Clean Backfill (installed)	1990	CY		1.50	2.36	7.07		2985	4696	14069	21751	
							751200	2985	8537	17333	780055	
Working Level D = .15									1281	2600	3881	
							751200	2985	9818	19933	783936	
Burden @ 13% of Labor Cost									1276		1276	
Labor @ 15% of Labor Cost									1473		1473	
Material @ 5% of Material Cost								149			149	
Subcontract @ 10% of Sub. Cost							75120				75120	
Total Direct Cost							826320	3134	12567	19933	861954	
Indirects @ 50% of Total Direct Labor Cost									6283		6283	
Profit @ 10% Total Direct Cost											86195	
											954432	
Health & Safety Monitoring @ .08											76355	
Total Field Cost											1030787	
Contingency @ 20% of Total Field Cost											206157	
Engineering @ 5% of Total Field Cost											51539	
TOTAL COST THIS PAGE											1288484	

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CTC 001 1318

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 3 - Excavation Contaminated & Surface Soils
(RAA7T3L0)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	995	CY			1.93	1.64			1920	1632	3552	
Hauling	19900	MI	4.00				79600				79600	
Disposal	1480	TONS	200.00				296000				296000	
Clean Backfill (installed)	995	CY		1.50	2.36	7.07		1493	2348	7035	10875	
							375600	1493	4269	8666	390028	
Working Level D = .15									640	1300	1940	
							375600	1493	4909	9966	391968	
Burden @ 13% of Labor Cost									638		638	
Labor @ 15% of Labor Cost									736		736	
Material @ 5% of Material Cost								75			75	
Subcontract @ 10% of Sub. Cost							37560				37560	
Total Direct Cost							413160	1567	6283	9966	430977	
Indirects @ 50% of Total Direct Labor Cost									3142		3142	
Profit @ 10% Total Direct Cost											43098	
											477216	
Health & Safety Monitoring @ .1											47722	
Total Field Cost											524938	
Contingency @ 20% of Total Field Cost											104988	
Engineering @ 5% of Total Field Cost											26247	
TOTAL COST THIS PAGE											656172	

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 3 - Excavation Contaminated Surface Soils
(RAA7T3HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	2985	CY			1.93	1.64			5761	4895	10656	
Hauling	59700	MI	4.00				238800				238800	
Disposal	4440	TONS	200.00				888000				888000	
Clean Backfill (installed)	2985	CY		1.50	2.36	7.07		4478	7045	21104	32626	
							1126800	4478	12806	25999	1170083	
Working Level D = .15									1921	3900	5821	
							1126800	4478	14726	29899	1175903	
Burden @ 13% of Labor Cost									1914		1914	
Labor @ 15% of Labor Cost									2209		2209	
Material @ 5% of Material Cost								224			224	
Subcontract @ 10% of Sub. Cost							112680				112680	
Total Direct Cost							1239480	4701	18850	29899	1292931	
Indirects @ 50% of Total Direct Labor Cost									9425		9425	
Profit @ 10% Total Direct Cost											129293	
											1431649	
Health & Safety Monitoring @ .08											114532	
Total Field Cost											1546180	
Contingency @ 20% of Total Field Cost											309236	
Engineering @ 5% of Total Field Cost											77309	
TOTAL COST THIS PAGE											1932726	

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CTC 001 1320

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 4 - Excavation Contaminated Subsurface Soils
(RAA7T4)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	26400	CY			1.93	1.64			50952	43296	94248	
Hauling	528000	MI	4.00				2112000				2112000	
Disposal	39720	TONS	200.00				7944000				7944000	
Clean Backfill (installed)	26400	CY		1.50	2.36	7.07		39600	62304	186648	288552	
							10056000	39600	113256	229944	10438800	
Working Level D = .15									16988	34492	51480	
							10056000	39600	130244	264436	10490280	
Burden @ 13% of Labor Cost									16932		16932	
Labor @ 15% of Labor Cost									19537		19537	
Material @ 5% of Material Cost								1980			1980	
Subcontract @ 10% of Sub. Cost							1005600				1005600	
Total Direct Cost							11061600	41580	166713	264436	11534328	
Indirects @ 50% of Total Direct Labor Cost									83356		83356	
Profit @ 10% Total Direct Cost											1153433	
											12771118	
Health & Safety Monitoring @ .04											510845	
Total Field Cost											13281962	
Contingency @ 20% of Total Field Cost											2656392	
Engineering @ 5% of Total Field Cost											664098	
TOTAL COST THIS PAGE											16602453	

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 4 - Excavation Contaminated Subsurface Soils
(RAA7T4LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	13200	CY			1.93	1.64			25476	21648	47124	
Hauling	264000	MI	4.00				1056000				1056000	
Disposal	19860	TONS	200.00				3972000				3972000	
Clean Backfill (installed)	13200	CY		1.50	2.36	7.07		19800	31152	93324	144276	
							5028000	19800	56628	114972	5219400	
Working Level D = .15									8494	17246	25740	
							5028000	19800	65122	132218	5245140	
Burden @ 13% of Labor Cost									8466		8466	
Labor @ 15% of Labor Cost									9768		9768	
Material @ 5% of Material Cost								990			990	
Subcontract @ 10% of Sub. Cost							502800				502800	
Total Direct Cost							5530800	20790	83356	132218	5767164	
Indirects @ 50% of Total Direct Labor Cost									41678		41678	
Profit @ 10% Total Direct Cost											576716	
											6385559	
Health & Safety Monitoring @ .06											383134	
Total Field Cost											6768692	
Contingency @ 20% of Total Field Cost											1353738	
Engineering @ 5% of Total Field Cost											338435	
TOTAL COST THIS PAGE											8460865	

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CTC 001 1322

CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 4 - Excavation Contaminated Subsurface Soils
(RAA7T4HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	39600	CY			1.93	1.64			76428	64944	141372	
Hauling	792000	MI	4.00				3168000				3168000	
Disposal	59580	TONS	200.00				11916000				11916000	
Clean Backfill (installed)	39600	CY		1.50	2.36	7.07		59400	93456	279972	432828	
							15084000	59400	169884	344916	15658200	
Working Level D = .15									25483	51737	77220	
							15084000	59400	195367	396653	15735420	
Burden @ 13% of Labor Cost									25398		25398	
Labor @ 15% of Labor Cost									29305		29305	
Material @ 5% of Material Cost								2970			2970	
Subcontract @ 10% of Sub. Cost							1508400				1508400	
Total Direct Cost							16592400	62370	250069	396653	17301493	
Indirects @ 50% of Total Direct Labor Cost									125035		125035	
Profit @ 10% Total Direct Cost											1730149	
											19156677	
Health & Safety Monitoring @ .04											766267	
Total Field Cost											19922944	
Contingency @ 20% of Total Field Cost											3984589	
Engineering @ 5% of Total Field Cost											996147	
TOTAL COST THIS PAGE											24903679	

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CALDWELL TRUCKING
Operable Unit 3 - RAA7 Excavation & Offsite Disposal
TASK 5 - Site Prep
(RAA7T5)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
E & S CONTROLS												
Revegetation	329.2	MSF		24.60	5.60	4.45		8098	1844	1465	11407	
Silt Fence	4000	LF		2.30	.27			9200	1080		10280	
Chain Link Fence - 6'	4000	LF	10.55				42200				42200	
							42200	17298	2924	1465	63887	
Working Level D = .15									439	220	658	
							42200	17298	3362	1685	64545	
Burden @ 13% of Labor Cost									437		437	
Labor @ 15% of Labor Cost									504		504	
Material @ 5% of Material Cost								865			865	
Subcontract @ 10% of Sub. Cost							4220				4220	
Total Direct Cost							46420	18163	4303	1685	70571	
Indirects @ 50% of Total Direct Labor Cost									2152		2152	
Profit @ 10% Total Direct Cost											7057	
											79780	
Health & Safety Monitoring @ .1											7978	
Total Field Cost											87758	
Contingency @ 20% of Total Field Cost											17552	
Engineering @ 5% of Total Field Cost											4388	
TOTAL COST THIS PAGE											109698	

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CTC 001 1324

COST SUMMARY
CALDWELL TRUCKING
OPERABLE UNIT 3 - RAA 8 Excavation & Onsite Landfill

DIRECT CAPITAL COSTS

ITEM	LOW	BASE	HIGH
Task 1	1,567,804	1,992,094	2,689,899
Task 2	13,244	18,920	28,380
Task 3	138,726	168,652	220,091
Task 4	31,268	62,536	93,803
TASK 5	414,808	814,533	1,221,799
Task 6	109,698	109,698	109,698
TOTALS	2,275,548	3,166,433	4,363,670

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PRESENT WORTH ANALYSIS

LOW	BASE	HIGH
2,664,000	3,554,000	4,752,000

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ANNUAL OPERATING & MAINTENANCE COSTS

ITEM	QTY	UNIT	UNIT COST	ITEM COST	FREQUENCY	NOTES
Annual Inspection & Repair to Site	1	LS	---	24,500	1 - 30	2 men for 5 days @ $35/hr plus 5% of Direct Capital, costs for backfill and revegetation, plus 1% capital for landfill cap and reports.
Sampling & Analysis of Groundwater	16	LS	1050	16,300	1 - 30	8 MW's semi-annual sampling for HSL compounds.
TOTAL ANNUAL COSTS				41,300		

4/1/95

CMC 001 1325

SITE: CALDWELL TRUCKING
ALTERNATIVE NO.: 8
3554

PRESENT WORTH ANALYSIS

COST/YEAR COST OCCURS ($000'S)

COST COMPONENT	0	1	2	3	4	5	6	7	8	9	10	11
1. CAPITAL COST	3166											
2. O & M COSTS	---	41										
3. ANNUAL COSTS	3166	41	41	41	41	41	41	41	41	41	41	41
4. ANNUAL DISCOUNT RATE=10%	1	.909	.826	.751	.683	.621	.564	.513	.467	.424	.386	.35
PRESENT WORTH =	3166	37	34	31	28	25	23	21	19	17	16	16

	12	13	14	15	16	17	18	19	20	21	22	23
O & M COSTS	41	41	41	41	41	41	41	41	41	41	41	41
ANNUAL DISCOUNT RATE=10%	.319	.29	.263	.239	.218	.198	.18	.164	.149	.135	.123	.112
PRESENT WORTH =	13	12	11	10	9	8	7	7	6	6	5	5

	24	25	26	27	28	29	30	TOTAL PRESENT WORTH (000'S)
O & M COSTS	41	41	41	41	41	41	41	
ANNUAL DISCOUNT RATE=10%	.101	.092	.084	.076	.069	.063	.057	
PRESENT WORTH =	4	4	3	3	3	3	2	3554

49/95

CTC 001 1326

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation and Onsite Landfill
TASK 1 - Onsite Landfill
(RAABT1)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Diversion Channel	900	LF			.25	.65			225	585	810	
Clear & Grub	2	ACRES			1310.00	1680.00			2620	3360	5980	
Embankment	20000	CY		1.50	2.17	5.36		30000	43400	107200	180600	
Clay Liner	14000	CY		9.00	2.78	6.20		126000	38920	86800	251720	
Sand	2800	CY		6.50	2.50	6.48		18200	7000	18144	43344	
Perforated Pipe	600	LF		.45	1.34			270	804		1074	
Synthetic Membrane	100000	SF		.40	.30			40000	30000		70000	
Sand	2800	CY		6.50	2.50	6.48		18200	7000	18144	43344	
Perforated Pipe	600	LF		.45	1.34			270	804		1074	
Filter Fabric	11200	SY		1.20	.16			13440	1792		15232	
Waste Material-Haul Onsite	28000	CY			.33	.99			9240	27720	36960	
Waste Material-Spread & Compact	28000	CY			.69	1.19			19320	33320	52640	
Clay Cap	6000	CY		9.00	2.78	6.20		54000	16680	37200	107880	
Sand	1600	CY		6.50	2.50	6.48		10400	4000	10368	24768	
Synthetic Membrane	90000	SF		.30	.20			27000	18000		45000	
Sand	3200	CY		6.50	2.50	6.48		20800	8000	20736	49536	
Filter Fabric	10000	SY		1.20	.16			12000	1600		13600	
Soil Cover	2400	CY			1.15	2.39			2760	5736	8496	
Topsoil	1600	CY		6.00	2.17	5.36		9600	3472	8576	21648	
Revegetation	131	MSF		24.60	5.60	4.45		3223	734	583	4539	
Manhole	2	EA		855.00	138.00			1710	276		1986	
Fiberglass Tank - 1000 gal.	1	EA		1500.00	200.00			1500	200		1700	
Fiberglass Tank - 5000 gal.	1	EA		6000.00	300.00			6000	300		6300	
Fence	1700	LF	10.55				17935				17935	
Gate	1	EA	484.00				484				484	
Monitoring Wells	4	EA	2000.00				8000				8000	
							26419	392613	217147	378472	1014650	
Working Level D = .15									32572	56771	89343	
							26419	392613	249719	435243	1103993	
Burden @ 13% of Labor Cost									32463		32463	
Labor @ 15% of Labor Cost									37458		37458	
Material @ 5% of Material Cost								19631			19631	
Subcontract @ 10% of Sub. Cost							2642				2642	
Total Direct Cost							29061	412243	319640	435243	1196187	
Indirects @ 50% of Total Direct Labor Cost									159820		159820	
Profit @ 10% Total Direct Cost											119619	
											1475625	
Health & Safety Monitoring @ .08											118050	
Total Field Cost											1593675	
Contingency @ 20% of Total Field Cost											318735	
Engineering @ 5% of Total Field Cost											79684	
TOTAL COST THIS PAGE											1992094	

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CTC 001 1327

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation and Onsite Landfill
TASK 1 - Onsite Landfill
(RAABTILO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Diversion Channel	810	LF			.25	.65			203	527	729	
Clear & Grub	1.8	ACRES			1310.00	1680.00			2358	3024	5382	
Embankment	16000	CY		1.50	2.17	5.36		24000	34720	85760	144480	
Clay Liner	9800	CY		9.00	2.78	6.20		88200	27244	60760	176204	
Sand	2520	CY		6.50	2.50	6.48		16380	6300	16330	39010	
Perforated Pipe	600	LF		.45	1.34			270	804		1074	
Synthetic Membrane	80000	SF		.40	.30			32000	24000		56000	
Sand	2520	CY		6.50	2.50	6.48		16380	6300	16330	39010	
Perforated Pipe	600	LF		.45	1.34			270	804		1074	
Filter Fabric	11200	SY		1.20	.16			13440	1792		15232	
Waste Material-Haul Onsite	19600	CY			.33	.99			6468	19404	25872	
Waste Material-Spread & Compact	19600	CY			.69	1.19			13524	23324	36848	
Clay Cap	4200	CY		9.00	2.78	6.20		37800	11676	26040	75516	
Sand	1440	CY		6.50	2.50	6.48		9360	3600	9331	22291	
Synthetic Membrane	72000	SF		.30	.20			21600	14400		36000	
Sand	2880	CY		6.50	2.50	6.48		18720	7200	18662	44582	
Filter Fabric	10000	SY		1.20	.16			12000	1600		13600	
Soil Cover	1920	CY			1.15	2.39			2208	4589	6797	
Topsoil	1440	CY		6.00	2.17	5.36		8640	3125	7718	19483	
Revegetation	131	MSF		24.60	5.60	4.45		3223	734	583	4539	
Manhole	1.8	EA		855.00	138.00			1539	248		1787	
Fiberglass Tank - 1000 gal.	1	EA		1500.00	200.00			1500	200		1700	
Fiberglass Tank - 5000 gal.	1	EA		6000.00	300.00			6000	300		6300	
Fence	1700	LF	10.55				17935				17935	
Gate	1	EA	484.00				484				484	
Monitoring Wells	4	EA	2000.00				8000				8000	
							26419	311322	169807	292381	799929	
Working Level D = .15									25471	43857	69328	
							26419	311322	195278	336239	869258	
Burden @ 13% of Labor Cost									25386		25386	
Labor @ 15% of Labor Cost									29292		29292	
Material @ 5% of Material Cost								15566			15566	
Subcontract @ 10% of Sub. Cost							2642				2642	
Total Direct Cost							29061	326888	249956	336239	942144	
Indirects @ 50% of Total Direct Labor Cost									124978		124978	
Profit @ 10% Total Direct Cost											94214	
											1161336	
Health & Safety Monitoring @ .08											92907	
Total Field Cost											1254243	
Contingency @ 20% of Total Field Cost											250849	
Engineering @ 5% of Total Field Cost											62712	
TOTAL COST THIS PAGE											1567804	

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CTC 001 1328

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation and Onsite Landfill
TASK 1 - Onsite Landfill
(RAABTIHI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Diversion Channel	1080	LF			.25	.65			270	702	972	
Clear & Grub	2.4	ACRES			1310.00	1680.00			3144	4032	7176	
Embankment	26000	CY		1.50	2.17	5.36		39000	56420	139360	234780	
Clay Liner	21000	CY		9.00	2.78	6.20		189000	58380	130200	377580	
Sand	3360	CY		6.50	2.50	6.48		21840	8400	21773	52013	
Perforated Pipe	600	LF		.45	1.34			270	804		1074	
Synthetic Membrane	130000	SF		.40	.30			52000	39000		91000	
Sand	3360	CY		6.50	2.50	6.48		21840	8400	21773	52013	
Perforated Pipe	600	LF		.45	1.34			270	804		1074	
Filter Fabric	11200	SY		1.20	.16			13440	1792		15232	
Waste Material-Haul Onsite	42000	CY			.33	.99			13860	41580	55440	
Waste Material-Spread & Compact	42000	CY			.69	1.19			28980	49980	78960	
Clay Cap	9000	CY		9.00	2.78	6.20		81000	25020	55800	161820	
Sand	1920	CY		6.50	2.50	6.48		12480	4800	12442	29722	
Synthetic Membrane	117000	SF		.30	.20			35100	23400		58500	
Sand	3840	CY		6.50	2.50	6.48		24960	9600	24883	59443	
Filter Fabric	10000	SY		1.20	.16			12000	1600		13600	
Soil Cover	3120	CY			1.15	2.39			3588	7457	11045	
Topsoil	1920	CY		6.00	2.17	5.36		11520	4166	10291	25978	
Revegetation	131	MSF		24.60	5.60	4.45		3223	734	583	4539	
Manhole	2.4	EA		855.00	138.00			2052	331		2383	
Fiberglass Tank - 1000 gal.	1	EA		1500.00	200.00			1500	200		1700	
Fiberglass Tank - 5000 gal.	1	EA		6000.00	300.00			6000	300		6300	
Fence	1700	LF	10.55				17935				17935	
Gate	1	EA	484.00				484				484	
Monitoring Wells	4	EA	2000.00				8000				8000	
							26419	527495	293993	520855	1368762	
Working Level D = .15									44099	78128	122227	
							26419	527495	338092	598984	1490989	
Burden @ 13% of Labor Cost									43952		43952	
Labor @ 15% of Labor Cost									50714		50714	
Material @ 5% of Material Cost								26375			26375	
Subcontract @ 10% of Sub. Cost							2642				2642	
Total Direct Cost							29061	553869	432758	598984	1614672	
Indirects @ 50% of Total Direct Labor Cost									216379		216379	
Profit @ 10% Total Direct Cost											161467	
											1992518	
Health & Safety Monitoring @ .08											159401	
Total Field Cost											2151919	
Contingency @ 20% of Total Field Cost											430384	
Engineering @ 5% of Total Field Cost											107596	
TOTAL COST THIS TASK											2689899	

CTC 001 1329

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CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation & Onsite Landfill
TASK 2 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA8T2)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1	LS			1300.00	1500.00			1800	1500	3300	
Haul to Trmt. Facility	600	MI	4.00				2400				2400	
Disposal	19500	GAL	.20				3900				3900	
							6300	0	1800	1500	9600	
Working Level D = .15									270	225	495	
							6300	0	2070	1725	10095	
Burden @ 13% of Labor Cost									269		269	
Labor @ 15% of Labor Cost									311		311	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							630				630	
Total Direct Cost							6930	0	2650	1725	11305	
Indirects @ 50% of Total Direct Labor Cost									1325		1325	
Profit @ 10% Total Direct Cost											1130	
											13760	
Health & Safety Monitoring @ .1											1376	
Total Field Cost											15136	
Contingency @ 20% of Total Field Cost											3027	
Engineering @ 5% of Total Field Cost											757	
TOTAL COST THIS PAGE											18920	

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CTC 001 1330

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation & Onsite Landfill
TASK 2 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA8T2LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	.7	LS			1800.00	1500.00			1260	1050	2310	
Haul to Trmt. Facility	420	MI	4.00				1680				1680	
Disposal	13650	GAL	.20				2730				2730	
							4410	0	1260	1050	6720	
Working Level D = .15									189	158	347	
							4410	0	1449	1208	7067	
Burden @ 13% of Labor Cost									188		188	
Labor @ 15% of Labor Cost									217		217	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							441				441	
Total Direct Cost							4851	0	1855	1208	7913	
Indirects @ 50% of Total Direct Labor Cost									927		927	
Profit @ 10% Total Direct Cost											791	
											9632	
Health & Safety Monitoring @ .1											963	
Total Field Cost											10595	
Contingency @ 20% of Total Field Cost											2119	
Engineering @ 5% of Total Field Cost											530	
TOTAL COST THIS PAGE											13244	

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CTC 001 1331

CALDWELL TRUCKING
Operable Unit 3 - RAA8 Excavation & Onsite Landfill
TASK 2 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA8T2HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1.5	LS			1800.00	1500.00			2700	2250	4950	
Haul to Trmt. Facility	900	MI	4.00				3600				3600	
Disposal	29250	GAl	.20				5850				5850	
							9450	0	2700	2250	14400	
Working Level D = .15									405	338	743	
							9450	0	3105	2588	15143	
Burden @ 13% of Labor Cost									404		404	
Labor @ 15% of Labor Cost									466		466	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							945				945	
Total Direct Cost							10395	0	3974	2588	16957	
Indirects @ 50% of Total Direct Labor Cost									1987		1987	
Profit @ 10% Total Direct Cost											1696	
											20640	
Health & Safety Monitoring @ .1											2064	
Total Field Cost											22704	
Contingency @ 20% of Total Field Cost											4541	
Engineering @ 5% of Total Field Cost											1135	
TOTAL COST THIS PAGE											28380	

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CTC 001 1332

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation & Onsite Landfill
TASK 3 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAABT3)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1	LS			8750.00	4550.00			8750	4550	13300	
Hauling	1600	MI	4.00				6400				6400	
Disposal	6320	CF	8.00				50560				50560	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							56960	872	17500	9100	84432	
Working Level D = .15									2625	1365	3990	
							56960	872	20125	10465	88422	
Burden @ 13% of Labor Cost									2616		2616	
Labor @ 15% of Labor Cost									3019		3019	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							5696				5696	
Total Direct Cost							62656	915	25760	10465	99796	
Indirects @ 50% of Total Direct Labor Cost									12880		12880	
Profit @ 10% Total Direct Cost											9980	
											122656	
Health & Safety Monitoring @ .1											12266	
Total Field Cost											134921	
Contingency @ 20% of Total Field Cost											26984	
Engineering @ 5% of Total Field Cost											6746	
TOTAL COST THIS PAGE											168652	

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CTC 001 1333

CALDWELL TRUCKING
Operable Unit 3 - RAA8 Excavation & Onsite Landfill
TASK 3 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA8T3LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	.9	LS			8750.00	4550.00			7875	4095	11970	
Hauling	1440	MI	4.00				5760				5760	
Disposal	4424	CF	8.00				35392				35392	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							41152	872	16625	8645	67294	
Working Level D = .15									2494	1297	3791	
							41152	872	19119	9942	71084	
Burden @ 13% of Labor Cost									2485		2485	
Labor @ 15% of Labor Cost									2868		2868	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							4115				4115	
Total Direct Cost							45267	915	24472	9942	80596	
Indirects @ 50% of Total Direct Labor Cost									12236		12236	
Profit @ 10% Total Direct Cost											8060	
											100892	
Health & Safety Monitoring @ .1											10089	
Total Field Cost											110981	
Contingency @ 20% of Total Field Cost											22196	
Engineering @ 5% of Total Field Cost											5549	
TOTAL COST THIS PAGE											138726	

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CTC 001 1334

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation & Onsite Landfill
TASK 3 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAABT3HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1.2	LS			8750	4550			10500	5460	15960	
Hauling	1920	MI	4.00				7680				7680	
Disposal	9480	CF	8.00				75840				75840	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							83520	872	19250	10010	113652	
Working Level D = .15									2888	1502	4389	
							83520	872	22138	11512	118041	
Burden @ 13% of Labor Cost									2878		2878	
Labor @ 15% of Labor Cost									3321		3321	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							8352				8352	
Total Direct Cost							91872	915	28336	11512	132635	
Indirects @ 50% of Total Direct Labor Cost									14168		14168	
Profit @ 10% Total Direct Cost											13263	
											160066	
Health & Safety Monitoring @ .1											16007	
Total Field Cost											176073	
Contingency @ 20% of Total Field Cost											35215	
Engineering @ 5% of Total Field Cost											8804	
TOTAL COST THIS PAGE											220091	

CTC 001 1335

CALDWELL TRUCKING
Operable Unit 3 - RAA8 Excavation & Onsite Landfill
TASK 4 - Excavate Contaminated Surface Soils
(RAA8T4)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	1990	CY			1.93	1.64			3841	3264	7104	
Clean Backfill (installed)	1990	CY		1.50	2.36	7.07		2985	4696	14069	21751	
							0	2985	8537	17333	28855	
Working Level D = .15									1281	2600	3881	
							0	2985	9818	19933	32736	
Burden @ 13% of Labor Cost									1276		1276	
Labor @ 15% of Labor Cost									1473		1473	
Material @ 5% of Material Cost								149			149	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	3134	12567	19933	35634	
Indirects @ 50% of Total Direct Labor Cost									6283		6283	
Profit @ 10% Total Direct Cost											3563	
											45480	
Health & Safety Monitoring @ .1											4548	
Total Field Cost											50028	
Contingency @ 20% of Total Field Cost											10006	
Engineering @ 5% of Total Field Cost											2501	
TOTAL COST THIS PAGE											62536	

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CTC 001 1336

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation & Onsite Landfill
TASK 4 - Excavate Contaminated Surface Soils
(RAA8T4LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	995	CY			1.93	1.64			1920	1632	3552	
Clean Backfill (installed)	995	CY		1.50	2.36	7.07		1493	2348	7035	10875	
							0	1493	4269	8666	14428	
Working Level D = .15									640	1300	1940	
							0	1493	4909	9966	16368	
Burden @ 13% of Labor Cost									638		638	
Labor @ 15% of Labor Cost									736		736	
Material @ 5% of Material Cost								75			75	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	1567	6283	9966	17817	
Indirects @ 50% of Total Direct Labor Cost									3142		3142	
Profit @ 10% Total Direct Cost											1782	
											22740	
Health & Safety Monitoring @ .1											2274	
Total Field Cost											25014	
Contingency @ 20% of Total Field Cost											5003	
Engineering @ 5% of Total Field Cost											1251	
TOTAL COST THIS PAGE											31268	

63/95

CTC 001 1337

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation & Onsite Landfill
TASK 4 - Excavate Contaminated Surface Soils
(RAABT4HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	2985	CY			1.93	1.64			5761	4895	10656	
Clean Backfill (installed)	2985	CY		1.50	2.36	7.07		4478	7045	21104	32626	
							0	4478	12806	25999	43283	
Working Level D = .15									1921	3900	5821	
							0	4478	14726	29899	49103	
Burden @ 13% of Labor Cost									1914		1914	
Labor @ 15% of Labor Cost									2209		2209	
Material @ 5% of Material Cost								224			224	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	4701	18850	29899	53451	
Indirects @ 50% of Total Direct Labor Cost									9425		9425	
Profit @ 10% Total Direct Cost											5345	
											68221	
Health & Safety Monitoring @ .1											6822	
Total Field Cost											75043	
Contingency @ 20% of Total Field Cost											15009	
Engineering @ 5% of Total Field Cost											3752	
TOTAL COST THIS PAGE											93803	

54/45

CTC 001 1338

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation & Onsite Landfill
TASK 5 - Excavate Contaminated Subsurface Soils
(RAABT5)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	26400	CY			1.93	1.64			50952	43296	94248	
Clean Backfill (installed)	26400	CY		1.50	2.36	7.07		39600	62304	186648	288552	
							0	39600	113256	229944	382800	
Working Level D = .15									16988	34492	51480	
							0	39600	130244	264436	434280	
Burden @ 13% of Labor Cost									16932		16932	
Labor @ 15% of Labor Cost									19537		19537	
Material @ 5% of Material Cost								1980			1980	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	41580	166713	264436	472728	
Indirects @ 50% of Total Direct Labor Cost									83356		83356	
Profit @ 10% Total Direct Cost											47273	
											603358	
Health & Safety Monitoring @ .08											48269	
Total Field Cost											651626	
Contingency @ 20% of Total Field Cost											130325	
Engineering @ 5% of Total Field Cost											32581	
TOTAL COST THIS PAGE											814533	

CALDWELL TRUCKING
Operable Unit 3 - RAAB Excavation & Onsite Landfill
TASK 5 - Excavate Contaminated Subsurface Soils
(RAABT5LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	13200	CY			1.93	1.64			25476	21648	47124	
Clean Backfill (installed)	13200	CY		1.50	2.36	7.07		19800	31152	93324	144276	
							0	19800	56628	114972	191400	
Working Level D = .15									8494	17246	25740	
							0	19800	65122	132218	217140	
Burden @ 13% of Labor Cost									8466		8466	
Labor @ 15% of Labor Cost									9768		9768	
Material @ 5% of Material Cost								990			990	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	20790	83356	132218	236364	
Indirects @ 50% of Total Direct Labor Cost									41678		41678	
Profit @ 10% Total Direct Cost											23636	
											301679	
Health & Safety Monitoring @ .1											30168	
Total Field Cost											331847	
Contingency @ 20% of Total Field Cost											66369	
Engineering @ 5% of Total Field Cost											16592	
TOTAL COST THIS PAGE											414808	

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CTC 001 1340

CALDWELL TRUCKING
Operable Unit 3 - RAA8 Excavation & Onsite Landfill
TASK 5 - Excavate Contaminated Subsurface Soils
(RAA8T5HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	39600	CY			1.93	1.64			76428	64944	141372	
Clean Backfill (installed)	39600	CY		1.50	2.36	7.07		59400	93456	279972	432828	
							0	59400	169884	344916	574200	
Working Level D = .15									25483	51737	77220	
							0	59400	195367	396653	651420	
Burden @ 13% of Labor Cost									25398		25398	
Labor @ 15% of Labor Cost									29305		29305	
Material @ 5% of Material Cost								2970			2970	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	62370	250069	396653	709093	
Indirects @ 50% of Total Direct Labor Cost									125035		125035	
Profit @ 10% Total Direct Cost											70909	
											905037	
Health & Safety Monitoring @ .08											72403	
Total Field Cost											977439	
Contingency @ 20% of Total Field Cost											195488	
Engineering @ 5% of Total Field Cost											48872	
TOTAL COST THIS PAGE											1221799	

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CTC 001 1341

COST SUMMARY
CALDWELL TRUCKING
OPERABLE UNIT 3 - RAA 9 Excavation & Offsite Incineration

DIRECT CAPITAL COSTS

ITEM	LOW	BASE	HIGH
Task 1	13,244	18,920	28,380
Task 2	138,726	168,652	220,091
Task 3	31,268	62,536	93,803
Task 4	414,808	814,533	1,221,799
Task 5	33,514,756	47,882,088	57,454,777
Task 6	109,698	109,698	109,698
TOTALS	34,222,500	49,056,427	59,128,548

****

PRESENT WORTH ANALYSIS

LOW	BASE	HIGH
34,469,000	49,302,000	59,375,000

****

ANNUAL OPERATING & MAINTENANCE COSTS

ITEM	QTY	UNIT	UNIT COST	ITEM COST	FREQUENCY	NOTES
Annual Inspection & Repair to Site	1	LS	---	17,800	1 - 30	2 men for 5 days @ $35/hr plus 5% of Direct Capital Costs for Backfill and Revegetation.
Sampling & Analysis of Groundwater	8	Samples	1050	8,400	1 - 30	4 MW's semi-annual sampling for HSL compounds.
TOTAL ANNUAL COSTS				26200		

CTC 001 1342

58/95

SITE: CALDWELL TRUCKING
ALTERNATIVE NO.: 9
49302

PRESENT WORTH ANALYSIS

COST/YEAR COST OCCURS ($000'S)

COST COMPONENT	0	1	2	3	4	5	6	7	8	9	10	11
1. CAPITAL COST	49056											
2. O & M COSTS	---	26										
3. ANNUAL COSTS	49056	26	26	26	26	26	26	26	26	26	26	26
4. ANNUAL DISCOUNT RATE=10%	1	.909	.826	.751	.683	.621	.564	.513	.467	.424	.386	.35
PRESENT WORTH =	49056	24	21	20	18	16	15	13	12	11	10	10

	12	13	14	15	16	17	18	19	20	21	22	23
O & M COSTS	26	26	26	26	26	26	26	26	26	26	26	26
ANNUAL DISCOUNT RATE=10%	.319	.29	.263	.239	.218	.198	.18	.164	.149	.135	.123	.112
PRESENT WORTH =	8	8	7	6	6	5	5	4	4	4	3	3

	24	25	26	27	28	29	30	TOTAL PRESENT WORTH (000'S)
O & M COSTS	26	26	26	26	26	26	26	
ANNUAL DISCOUNT RATE=10%	.101	.092	.084	.076	.069	.063	.057	
PRESENT WORTH =	3	2	2	2	2	2	1	49302

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CTC 001 1343

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA9T1)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1	LS			1800.00	1500.00			1800	1500	3300	
Haul to Trmt. Facility	600	MI	4.00				2400				2400	
Disposal	19500	GAL	.20				3900				3900	
							6300	0	1800	1500	9600	
Working Level D = .15									270	225	495	
							6300	0	2070	1725	10095	
Burden @ 13% of Labor Cost									269		269	
Labor @ 15% of Labor Cost									311		311	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							630				630	
Total Direct Cost							6930	0	2650	1725	11305	
Indirects @ 50% of Total Direct Labor Cost									1325		1325	
Profit @ 10% Total Direct Cost											1130	
											13760	
Health & Safety Monitoring @ .1											1376	
Total Field Cost											15136	
Contingency @ 20% of Total Field Cost											3027	
Engineering @ 5% of Total Field Cost											757	
TOTAL COST THIS PAGE											18920	

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA9T1LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	.7	LS			1800.00	1500.00			1260	1050	2310	
Haul to Trmt. Facility	420	MI	4.00				1680				1680	
Disposal	13650	GAL	.20				2730				2730	
							4410	0	1260	1050	6720	
Working Level D = .15									189	158	347	
							4410	0	1449	1208	7067	
Burden @ 13% of Labor Cost									188		188	
Labor @ 15% of Labor Cost									217		217	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							441				441	
Total Direct Cost							4851	0	1855	1208	7913	
Indirects @ 50% of Total Direct Labor Cost									927		927	
Profit @ 10% Total Direct Cost											791	
											9632	
Health & Safety Monitoring @ .1											963	
Total Field Cost											10595	
Contingency @ 20% of Total Field Cost											2119	
Engineering @ 5% of Total Field Cost											530	
TOTAL COST THIS PAGE											13244	

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA9T1HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1.5	LS			1800.00	1500.00			2700	2250	4950	
Haul to Trmt. Facility	900	MI	4.00				3600				3600	
Disposal	29250	GAL	.20				5850				5850	
							9450	0	2700	2250	14400	
Working Level D = .15									405	338	743	
							9450	0	3105	2588	15143	
Burden @ 13% of Labor Cost									404		404	
Labor @ 15% of Labor Cost									466		466	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							945				945	
Total Direct Cost							10395	0	3974	2588	16957	
Indirects @ 50% of Total Direct Labor Cost									1987		1987	
Profit @ 10% Total Direct Cost											1696	
											20640	
Health & Safety Monitoring @ .1											2064	
Total Field Cost											22704	
Contingency @ 20% of Total Field Cost											4541	
Engineering @ 5% of Total Field Cost											1135	
TOTAL COST THIS PAGE											28380	

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CTC 001 1346

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA9T2)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1	LS			8750.00	4550.00			8750	4550	13300	
Hauling	1600	MI	4.00				6400				6400	
Disposal	6320	CF	8.00				50560				50560	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							56960	872	17500	9100	84432	
Working Level D = .15									2625	1365	3990	
							56960	872	20125	10465	88422	
Burden @ 13% of Labor Cost									2616		2616	
Labor @ 15% of Labor Cost									3019		3019	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							5696				5696	
Total Direct Cost							62656	915	25760	10465	99796	
Indirects @ 50% of Total Direct Labor Cost									12880		12880	
Profit @ 10% Total Direct Cost											9980	
											122656	
Health & Safety Monitoring @ .1											12266	
Total Field Cost											134921	
Contingency @ 20% of Total Field Cost											26984	
Engineering @ 5% of Total Field Cost											6746	
TOTAL COST THIS PAGE											168652	

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CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA9T2LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	.9	LS			8750.00	4550.00			7875	4095	11970	
Hauling	1440	MI	4.00				5760				5760	
Disposal	4424	CF	8.00				35392				35392	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							41152	872	16625	8645	67294	
Working Level D = .15									2494	1297	3791	
							41152	872	19119	9942	71084	
Burden @ 13% of Labor Cost									2485		2485	
Labor @ 15% of Labor Cost									2868		2868	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							4115				4115	
Total Direct Cost							45267	915	24472	9942	80596	
Indirects @ 50% of Total Direct Labor Cost									12236		12236	
Profit @ 10% Total Direct Cost											8060	
											100892	
Health & Safety Monitoring @ .1											10089	
Total Field Cost											110981	
Contingency @ 20% of Total Field Cost											22196	
Engineering @ 5% of Total Field Cost											5549	
TOTAL COST THIS PAGE											138726	

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA9T2HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1.2	LS			8750.00	4550.00			10500	5460	15960	
Hauling	1920	MI	4.00				7680				7680	
Disposal	9480	CF	8.00				75840				75840	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							83520	872	19250	10010	113652	
Working Level D = .15									2888	1502	4389	
							83520	872	22138	11512	118041	
Burden @ 13% of Labor Cost									2878		2878	
Labor @ 15% of Labor Cost									3321		3321	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							8352				8352	
Total Direct Cost							91872	915	28336	11512	132635	
Indirects @ 50% of Total Direct Labor Cost									14168		14168	
Profit @ 10% Total Direct Cost											13263	
											160066	
Health & Safety Monitoring @ .1											16007	
Total Field Cost											176073	
Contingency @ 20% of Total Field Cost											35215	
Engineering @ 5% of Total Field Cost											8804	
TOTAL COST THIS PAGE											220091	

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CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 3 - Excavate Contaminated Surface Soils
(RAA9T3)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	1990	CY			1.93	1.64			3841	3264	7104	
Clean Backfill (installed)	1990	CY		1.50	2.36	7.07		2985	4696	14069	21751	
							0	2985	8537	17333	28855	
Working Level D = .15									1281	2600	3881	
							0	2985	9818	19933	32736	
Burden @ 13% of Labor Cost									1276		1276	
Labor @ 15% of Labor Cost									1473		1473	
Material @ 5% of Material Cost								149			149	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	3134	12567	19933	35634	
Indirects @ 50% of Total Direct Labor Cost									6283		6283	
Profit @ 10% Total Direct Cost											3563	
											45480	
Health & Safety Monitoring @ .1											4548	
Total Field Cost											50028	
Contingency @ 20% of Total Field Cost											10006	
Engineering @ 5% of Total Field Cost											2501	
TOTAL COST THIS PAGE											62536	

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 3 - Excavate Contaminated Surface Soils
(RAA9T3LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	995	CY			1.93	1.64			1920	1632	3552	
Clean Backfill (installed)	995	CY		1.50	2.36	7.07		1493	2348	7035	10875	
							0	1493	4269	8666	14428	
Working Level D = .15									640	1300	1940	
							0	1493	4909	9966	16368	
Burden @ 13% of Labor Cost									638		638	
Labor @ 15% of Labor Cost									736		736	
Material @ 5% of Material Cost								75			75	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	1567	6283	9966	17817	
Indirects @ 50% of Total Direct Labor Cost									3142		3142	
Profit @ 10% Total Direct Cost											1782	
											22740	
Health & Safety Monitoring @ .1											2274	
Total Field Cost											25014	
Contingency @ 20% of Total Field Cost											5003	
Engineering @ 5% of Total Field Cost											1251	
TOTAL COST THIS PAGE											31268	

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CALDWELL TRUCKING
Operable Unit 3 - BAA9 Excavation & Offsite Incineration
TASK 3 - Excavate Contaminated Surface Soils
(BAA9T3HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	2985	CY			1.93	1.64			5761	4895	10656	
Clean Backfill (installed)	2985	CY		1.50	2.36	7.07		4478	7045	21104	32626	
							0	4478	12806	25999	43283	
Working Level D = .15									1921	3900	5821	
							0	4478	14726	29899	49103	
Burden @ 13% of Labor Cost									1914		1914	
Labor @ 15% of Labor Cost									2209		2209	
Material @ 5% of Material Cost								224			224	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	4701	18850	29899	53451	
Indirects @ 50% of Total Direct Labor Cost									9425		9425	
Profit @ 10% Total Direct Cost											5345	
											68221	
Health & Safety Monitoring @ .1											6822	
Total Field Cost											75043	
Contingency @ 20% of Total Field Cost											15009	
Engineering @ 5% of Total Field Cost											3752	
TOTAL COST THIS PAGE											93803	

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CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 4 - Excavate Contaminated Subsurface Soils
(RAA9T4)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	26400	CY			1.93	1.64			50952	43296	94248	
Clean Backfill (installed)	26400	CY		1.50	2.36	7.07		39600	62304	186648	288552	
							0	39600	113256	229944	382800	
Working Level D = .15									16988	34492	51480	
							0	39600	130244	264436	434280	
Burden @ 13% of Labor Cost									16932		16932	
Labor @ 15% of Labor Cost									19537		19537	
Material @ 5% of Material Cost								1980			1980	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	41580	166713	264436	472728	
Indirects @ 50% of Total Direct Labor Cost									83356		83356	
Profit @ 10% Total Direct Cost											47273	
											603358	
Health & Safety Monitoring @ .08											48269	
Total Field Cost											651626	
Contingency @ 20% of Total Field Cost											130325	
Engineering @ 5% of Total Field Cost											32581	
TOTAL COST THIS PAGE											814533	

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 4 - Excavate Contaminated Subsurface Soils
(RAA9T4LD)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	13200	CY			1.93	1.64			25476	21648	47124	
Clean Backfill (installed)	13200	CY		1.50	2.36	7.07		19800	31152	93324	144276	
							0	19800	56628	114972	191400	
Working Level D = .15									8494	17246	25740	
							0	19800	65122	132218	217140	
Burden @ 13% of Labor Cost									8466		8466	
Labor @ 15% of Labor Cost									9768		9768	
Material @ 5% of Material Cost								990			990	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	20790	83356	132218	236364	
Indirects @ 50% of Total Direct Labor Cost									41678		41678	
Profit @ 10% Total Direct Cost											23636	
											301679	
Health & Safety Monitoring @ .1											30168	
Total Field Cost											331847	
Contingency @ 20% of Total Field Cost											66369	
Engineering @ 5% of Total Field Cost											16592	
TOTAL COST THIS PAGE											414808	

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 4 - Excavate Contaminated Subsurface Soils
(RAA9T4HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	39600	CY			1.93	1.64			76428	64944	141372	
Clean Backfill (installed)	39600	CY		1.50	2.36	7.07		59400	93456	279972	432828	
							0	59400	169884	344916	574200	
Working Level D = .15									25483	51737	77220	
							0	59400	195367	396653	651420	
Burden @ 13% of Labor Cost									25398		25398	
Labor @ 15% of Labor Cost									29305		29305	
Material @ 5% of Material Cost								2970			2970	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	62370	250067	396653	709093	
Indirects @ 50% of Total Direct Labor Cost									125035		125035	
Profit @ 10% Total Direct Cost											70909	
											905037	
Health & Safety Monitoring @ .08											72403	
Total Field Cost											977439	
Contingency @ 20% of Total Field Cost											195488	
Engineering @ 5% of Total Field Cost											48872	
TOTAL COST THIS PAGE											1221799	

CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 5 - Transportation & Incineration
(RAA9T5)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Place Waste into Packs	573	HR			13.00				7449		7449	
Fiber Packs	143300	EA		8.75				1253875			1253875	
Haul	143300	MI	4.00				573200				573200	
Incinerate	143277	PACKS	200.00				28655400				28655400	
							29228600	1253875	7449	0	30489924	
Working Level D = .15									1117	0	1117	
							29228600	1253875	8566	0	30491041	
Burden @ 13% of Labor Cost									1114		1114	
Labor @ 15% of Labor Cost									1285		1285	
Material @ 5% of Material Cost								62694			62694	
Subcontract @ 10% of Sub. Cost							2922860				2922860	
Total Direct Cost							32151460	1316569	10965	0	33478994	
Indirects @ 50% of Total Direct Labor Cost									5482		5482	
Profit @ 10% Total Direct Cost											3347899	
											36832376	
Health & Safety Monitoring @ .04											1473295	
Total Field Cost											38305671	
Contingency @ 20% of Total Field Cost											7661134	
Engineering @ 5% of Total Field Cost											1915284	
TOTAL COST THIS PAGE											47882088	

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CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 5 - Transportation & Incineration
(RAA9T5LO)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Place Waste into Packs	287	HR			13.00				3725		3725	
Fiber Packs	100310	EA		8.75				877713			877713	
Haul	100300	MI	4.00				401200				401200	
Incinerate	100300	PACKS	200.00				20060000				20060000	
							20461200	877713	3725	0	21342637	
Working Level D = .15									559	0	559	
							20461200	877713	4283	0	21343196	
Burden @ 13% of Labor Cost									557		557	
Labor @ 15% of Labor Cost									642		642	
Material @ 5% of Material Cost								43886			43886	
Subcontract @ 10% of Sub. Cost							2046120				2046120	
Total Direct Cost							22507320	921598	5482	0	23434401	
Indirects @ 50% of Total Direct Labor Cost									2741		2741	
Profit @ 10% Total Direct Cost											2343440	
											25780582	
Health & Safety Monitoring @ .04											1031223	
Total Field Cost											26811805	
Contingency @ 20% of Total Field Cost											5362361	
Engineering @ 5% of Total Field Cost											1340590	
TOTAL COST THIS PAGE											33514756	

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CALDWELL TRUCKING
Operable Unit 3 - RAA9 Excavation & Offsite Incineration
TASK 5 - Transportation & Incineration
(RAA9T5HI)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Place Waste into Packs	860	HR			13.00				11174		11174	
Fiber Packs	171960	EA		8.75				1504650			1504650	
Haul	171900	MI	4.00				687600				687600	
Incinerate	171900	PACKS	200.00				34380000				34380000	
							35067600	1504650	11174	0	36583424	
Working Level D = .15									1676	0	1676	
							35067600	1504650	12850	0	36585100	
Burden @ 13% of Labor Cost									1670		1670	
Labor @ 15% of Labor Cost									1927		1927	
Material @ 5% of Material Cost								75233			75233	
Subcontract @ 10% of Sub. Cost							3506760				3506760	
Total Direct Cost							38574360	1579883	16447	0	40170690	
Indirects @ 50% of Total Direct Labor Cost									8224		8224	
Profit @ 10% Total Direct Cost											4017069	
											44195983	
Health & Safety Monitoring @ .04											1767839	
Total Field Cost											45963822	
Contingency @ 20% of Total Field Cost											9192764	
Engineering @ 5% of Total Field Cost											2298191	
TOTAL COST THIS PAGE											57454777	

CALDWELL TRUCKING
Operable Unit 2 - BAAP Excavation & Offsite Incineration
TASK 6 - Site Prep
(BAA9T6)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
E & S CONTROLS												
Revegetation	329.2	MSF		24.60	5.60	4.45		8098	1844	1465	11407	
Silt Fence	4000	LF		2.30	.27			9200	1080		10280	
Chain Link Fence - 8'	4000	LF	10.55				42200				42200	
							42200	17298	2924	1465	63887	
Working Level D = .15									439	220	658	
							42200	17298	3362	1685	64545	
Burden @ 13% of Labor Cost									437		437	
Labor @ 15% of Labor Cost									504		504	
Material @ 5% of Material Cost								865			865	
Subcontract @ 10% of Sub. Cost							4220				4220	
Total Direct Cost							46420	18163	4303	1685	70571	
Indirects @ 50% of Total Direct Labor Cost									2152		2152	
Profit @ 10% Total Direct Cost											7057	
											79780	
Health & Safety Monitoring @ .1											7978	
Total Field Cost											87758	
Contingency @ 20% of Total Field Cost											17552	
Engineering @ 5% of Total Field Cost											4388	
TOTAL COST THIS PAGE											109698	

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COST SUMMARY
CALDWELL TRUCKING
OPERABLE UNIT 3 - RAA 10 Excavation & Onsite Incineration/Solidification

DIRECT CAPITAL COSTS

ITEM	LOW	BASE	HIGH
Task 1	13,244	18,920	28,380
Task 2	138,726	168,652	220,091
Task 3	11,834	23,668	35,502
Task 4	451,645	886,867	1,330,300
Task 5	38,426,031	38,426,031	38,426,031
Task 6	1,351,943	1351943	1,351,943
Task 7	1,034,289	1,477,556	2,216,334
Task 8	109,698	109,698	109,698
TOTALS	41,537,410	42,463,335	43,718,279

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PRESENT WORTH ANALYSIS

LOW	BASE	HIGH
41,783,000	42,709,000	43,964,000

****

ANNUAL OPERATING & MAINTENANCE COSTS

ITEM	QTY	UNIT	UNIT COST	ITEM COST	FREQUENCY	NOTES
Annual Inspection & Repair to Site	1	LS	---	17,800	1 - 30	2 men for 5 days @ $35/hr plus 5% of Direct Capital Costs for Backfill and Revegetation.
Sampling & Analysis of Groundwater	8	Samples	1050	8,400	1 - 30	4 MW's semi-annual sampling for HSL compounds.
TOTAL ANNUAL COSTS				26200		

SITE: CALDWELL TRUCKING
ALTERNATIVE NO.: 10
42709

PRESENT WORTH ANALYSIS

COST/YEAR COST OCCURS ($000'S)

COST COMPONENT	0	1	2	3	4	5	6	7	8	9	10	11
1. CAPITAL COST	42463											
2. O & M COSTS	---	26										
3. ANNUAL COSTS	42463	26	26	26	26	26	26	26	26	26	26	26
4. ANNUAL DISCOUNT RATE=10%	1	.909	.826	.751	.683	.621	.564	.513	.467	.424	.386	.35
PRESENT WORTH =	42463	24	21	20	18	16	15	13	12	11	10	10

	12	13	14	15	16	17	18	19	20	21	22	23
O & M COSTS	26	26	26	26	26	26	26	26	26	26	26	26
ANNUAL DISCOUNT RATE=10%	.319	.29	.263	.239	.218	.198	.18	.164	.149	.135	.123	.112
PRESENT WORTH =	8	8	7	6	6	5	5	4	4	4	3	3

	24	25	26	27	28	29	30	TOTAL PRESENT WORTH (000'S)
O & M COSTS	26	26	26	26	26	26	26	
ANNUAL DISCOUNT RATE=10%	.101	.092	.084	.076	.069	.063	.057	
PRESENT WORTH =	3	2	2	2	2	2	1	42709

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA10T1)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1	LS			1800.00	1500.00			1800	1500	3300	
Haul to Trmt. Facility	600	MI	4.00				2400				2400	
Disposal	19500	GAL	.20				3900				3900	
							6300	0	1800	1500	9600	
Working Level D = .15									270	225	495	
							6300	0	2070	1725	10095	
Burden @ 13% of Labor Cost									269		269	
Labor @ 15% of Labor Cost									311		311	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							630				630	
Total Direct Cost							6930	0	2650	1725	11305	
Indirects @ 50% of Total Direct Labor Cost									1325		1325	
Profit @ 10% Total Direct Cost											1130	
											13760	
Health & Safety Monitoring @ .1											1376	
Total Field Cost											15136	
Contingency @ 20% of Total Field Cost											3027	
Engineering @ 5% of Total Field Cost											757	
TOTAL COST THIS PAGE											18920	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA10T1L)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	.7	LS							1260	1050	2310	
Haul to Trmt. Facility	420	MI	4.00				1680				1680	
Disposal	13650	GAL	.20				2730				2730	
							4410	0	1260	1050	6720	
Working Level D = .15									189	158	347	
							4410	0	1449	1208	7067	
Burden @ 13% of Labor Cost									188		188	
Labor @ 15% of Labor Cost									217		217	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							441				441	
Total Direct Cost							4851	0	1855	1208	7913	
Indirects @ 50% of Total Direct Labor Cost									927		927	
Profit @ 10% Total Direct Cost											791	
											9632	
Health & Safety Monitoring @ .1											963	
Total Field Cost											10595	
Contingency @ 20% of Total Field Cost											2119	
Engineering @ 5% of Total Field Cost											530	
TOTAL COST THIS PAGE											13244	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 1 - Remove Tank Wastes & Dispose at Offsite
EPA approved facility.
(RAA10T1H)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK WASTES												
Remove Waste (Vacuum Truck)	1.5	LS			8750.00	4550.00			2700	2250	4950	
Haul to Trmt. Facility	900	MI	4.00				3600				3600	
Disposal	29250	GAl	.20				5850				5850	
							9450	0	2700	2250	14400	
Working Level D = .15									405	338	743	
							9450	0	3105	2588	15143	
Burden @ 13% of Labor Cost									404		404	
Labor @ 15% of Labor Cost									466		466	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							945				945	
Total Direct Cost							10395	0	3974	2588	16957	
Indirects @ 50% of Total Direct Labor Cost									1987		1987	
Profit @ 10% Total Direct Cost											1696	
											20640	
Health & Safety Monitoring @ .1											2064	
Total Field Cost											22704	
Contingency @ 20% of Total Field Cost											4541	
Engineering @ 5% of Total Field Cost											1135	
TOTAL COST THIS PAGE											28380	

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CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA10T2)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1	LS			8750.00	4550.00			8750	4550	13300	
Hauling	1600	MI	4.00				6400				6400	
Disposal	6320	CF	8.00				50560				50560	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							56960	872	17500	9100	84432	
Working Level D = .15									2625	1365	3990	
							56960	872	20125	10465	88422	
Burden @ 13% of Labor Cost									2616		2616	
Labor @ 15% of Labor Cost									3019		3019	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							5696				5696	
Total Direct Cost							62656	915	25760	10465	99796	
Indirects @ 50% of Total Direct Labor Cost									12880		12880	
Profit @ 10% Total Direct Cost											9980	
											122656	
Health & Safety Monitoring @ .1											12266	
Total Field Cost											134921	
Contingency @ 20% of Total Field Cost											26984	
Engineering @ 5% of Total Field Cost											6746	
TOTAL COST THIS PAGE											168652	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA10T2L)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	.9	LS			8750.00	4550.00			7875	4095	11970	
Hauling	1440	MI	4.00				5760				5760	
Disposal	4424	CF	8.00				35392				35392	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							41152	872	16625	8645	67294	
Working Level D = .15									2494	1297	3791	
							41152	872	19119	9942	71084	
Burden @ 13% of Labor Cost									2485		2485	
Labor @ 15% of Labor Cost									2868		2868	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							4115				4115	
Total Direct Cost							45267	915	24472	9942	80596	
Indirects @ 50% of Total Direct Labor Cost									12236		12236	
Profit @ 10% Total Direct Cost											8060	
											100892	
Health & Safety Monitoring @ .1											10089	
Total Field Cost											110981	
Contingency @ 20% of Total Field Cost											22196	
Engineering @ 5% of Total Field Cost											5549	
TOTAL COST THIS PAGE											138726	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 2 - Remove Tanks & Dispose at Offsite
EPA approved facility.
(RAA10T2H)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
TANK REMOVAL												
Excavate Tanks	1.2	LS			8750	4550			10500	5460	15960	
Hauling	1920	MI	4.00				7680				7680	
Disposal	9480	CF	8.00				75840				75840	
Clean Backfill (installed)	581	CY		1.50	2.36	7.07		872	8750	4550	14172	
							83520	872	19250	10010	113652	
Working Level D = .15									2888	1502	4389	
							83520	872	22138	11512	118041	
Burden @ 13% of Labor Cost									2878		2878	
Labor @ 15% of Labor Cost									3321		3321	
Material @ 5% of Material Cost								44			44	
Subcontract @ 10% of Sub. Cost							8352				8352	
Total Direct Cost							91872	915	28336	11512	132635	
Indirects @ 50% of Total Direct Labor Cost									14168		14168	
Profit @ 10% Total Direct Cost											13263	
											160066	
Health & Safety Monitoring @ .1											16007	
Total Field Cost											176073	
Contingency @ 20% of Total Field Cost											35215	
Engineering @ 5% of Total Field Cost											8804	
TOTAL COST THIS PAGE											220091	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 3 - Excavation Contaminated Surface Soils
(RAA10T3)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	1990	CY			1.93	1.64			3841	3264	7104	
Hauling to Incinerator	1990	CY			.33	.99			657	1970	2627	
							0	0	4497	5234	9731	
Working Level D = .15									675	785	1460	
							0	0	5172	6019	11191	
Burden @ 13% of Labor Cost									672		672	
Labor @ 15% of Labor Cost									776		776	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	0	6620	6019	12639	
Indirects @ 50% of Total Direct Labor Cost									3310		3310	
Profit @ 10% Total Direct Cost											1264	
											17213	
Health & Safety Monitoring @ .1											1721	
Total Field Cost											18934	
Contingency @ 20% of Total Field Cost											3787	
Engineering @ 5% of Total Field Cost											947	
TOTAL COST THIS PAGE											23668	

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CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 3 - Excavation Contaminated Surface Soils
(RAA10T3L)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	995	CY			1.93	1.64			1920	1632	3552	
Hauling to Incinerator	995	CY			.33	.99			328	985	1313	
							0	0	2249	2617	4866	
Working Level D = .15									337	393	730	
							0	0	2586	3009	5595	
Burden @ 13% of Labor Cost									336		336	
Labor @ 15% of Labor Cost									388		388	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	0	3310	3009	6319	
Indirects @ 50% of Total Direct Labor Cost									1655		1655	
Profit @ 10% Total Direct Cost											632	
											8606	
Health & Safety Monitoring @ .1											861	
Total Field Cost											9467	
Contingency @ 20% of Total Field Cost											1893	
Engineering @ 5% of Total Field Cost											473	
TOTAL COST THIS PAGE											11834	

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CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification (High Temp.)
TASK 3 - Excavation Contaminated Surface Soils
(RAA10T3H)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SURFACE SOILS												
Excavation	2985	CY			1.93	1.64			5761	4895	10656	
Hauling to Incinerator	2985	CY			.33	.99			985	2955	3940	
							0	0	6746	7851	14597	
Working Level D = .15									1012	1178	2189	
							0	0	7758	9028	16786	
Burden @ 13% of Labor Cost									1009		1009	
Labor @ 15% of Labor Cost									1164		1164	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	0	9930	9028	18958	
Indirects @ 50% of Total Direct Labor Cost									4965		4965	
Profit @ 10% Total Direct Cost											1896	
											25819	
Health & Safety Monitoring @ .1											2582	
Total Field Cost											28401	
Contingency @ 20% of Total Field Cost											5680	
Engineering @ 5% of Total Field Cost											1420	
TOTAL COST THIS PAGE											35502	

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CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 4 - Excavation Contaminated Subsurface Soils
(RAA10T4)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	26400	CY			1.93	1.64			50952	43296	94248	
Hauling to Incinerator	26400	CY			.33	.99			8712	26136	34848	
Clean Backfill (installed)	26400	CY		1.50	2.36	7.07		39600	62304	186648	288552	
							0	39600	121968	256080	417648	
Working Level D = .15									18295	38412	56707	
							0	39600	140263	294492	474355	
Burden @ 13% of Labor Cost									18234		18234	
Labor @ 15% of Labor Cost									21039		21039	
Material @ 5% of Material Cost								1980			1980	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	41580	179537	294492	515609	
Indirects @ 50% of Total Direct Labor Cost									89768		89768	
Profit @ 10% Total Direct Cost											51561	
											656938	
Health & Safety Monitoring @ .08											52555	
Total Field Cost											709493	
Contingency @ 20% of Total Field Cost											141899	
Engineering @ 5% of Total Field Cost											35475	
TOTAL COST THIS PAGE											886867	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 4 - Excavation Contaminated Subsurface Soils
(RAA10T4L)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	13200	CY			1.93	1.64			25476	21648	47124	
Hauling to Incineration	13200	CY			.33	.99			4356	13068	17424	
Clean Backfill (installed)	13200	CY		1.50	2.36	7.07		19800	31152	93324	144276	
							0	19800	60984	128040	208824	
Working Level D = .15									9148	19206	28354	
							0	19800	70132	147246	237178	
Burden @ 13% of Labor Cost									9117		9117	
Labor @ 15% of Labor Cost									10520		10520	
Material @ 5% of Material Cost								990			990	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	20790	89768	147246	257804	
Indirects @ 50% of Total Direct Labor Cost									44884		44884	
Profit @ 10% Total Direct Cost											25780	
											328469	
Health & Safety Monitoring @ .1											32847	
Total Field Cost											361316	
Contingency @ 20% of Total Field Cost											72263	
Engineering @ 5% of Total Field Cost											18066	
TOTAL COST THIS PAGE											451645	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 4 - Excavation Contaminated Subsurface Soils
(RAA10T4H)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
CONTAM. SUBSURFACE SOILS												
Excavation	39600	CY			1.93	1.64			76428	64944	141372	
Hauling to Incineration	39600	CY			.33	.99			13068	39204	52272	
Clean Backfill (installed)	39600	CY		1.50	2.36	7.07		59400	93456	279972	432828	
							0	59400	182952	384120	626472	
Working Level D = .15									27443	57618	85061	
							0	59400	210395	441738	711533	
Burden @ 13% of Labor Cost									27351		27351	
Labor @ 15% of Labor Cost									31559		31559	
Material @ 5% of Material Cost								2970			2970	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	62370	269305	441738	773413	
Indirects @ 50% of Total Direct Labor Cost									134653		134653	
Profit @ 10% Total Direct Cost											77341	
											985407	
Health & Safety Monitoring @ .08											78833	
Total Field Cost											1064240	
Contingency @ 20% of Total Field Cost											212848	
Engineering @ 5% of Total Field Cost											53212	
TOTAL COST THIS PAGE											1330300	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 5 - Onsite Incineration
(RAA10T5)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Engineering Study		LS	20000.00				20000				20000	
Site Lighting & Other Util.		LS	15000.00				15000				15000	
Prep of Area		LS	35000.00				35000				35000	
Roads & Misc.		LS	10000.00				10000				10000	
Incineration	44270	TONS	550.00				24348500				24348500	
							24428500	0	0	0	24428500	
Working Level D = .15									0	0	0	
							24428500	0	0	0	24428500	
Burden @ 13% of Labor Cost									0		0	
Labor @ 15% of Labor Cost									0		0	
Material @ 5% of Material Cost								0			0	
Subcontract @ 10% of Sub. Cost							2442850				2442850	
Total Direct Cost							26871350	0	0	0	26871350	
Indirects @ 50% of Total Direct Labor Cost									0		0	
Profit @ 10% Total Direct Cost											2687135	
											29558485	
Health & Safety Monitoring @ .04											1182339	
Total Field Cost											30740824	
Contingency @ 20% of Total Field Cost											6148165	
Engineering @ 5% of Total Field Cost											1537041	
TOTAL COST THIS PAGE											38426031	

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CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 6 - Soil Solidification System
(RAA10T6)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Front End Loader		LS				60300.00				60300	60300	
Truck for Hauling		LS				15500.00				15500	15500	
Portland Cement Silo	1	EA	83000.00				83000				83000	
Soil Feed Hopper & Conveyor	1	EA		40000.00	15000.00			40000	15000		55000	
Portland Cement Feeder	2	EA		20000.00	2000.00			40000	4000		44000	
Soil & Cement Blender	2	EA		40000.00	4000.00			80000	8000		88000	
Slurry Tank	2	EA		7500.00	500.00			15000	1000		16000	
Slurry Tank Mixer	2	EA		9000.00	400.00			18000	800		18800	
Slurry Pumps	2	EA		5000.00	400.00			10000	800		10800	
Cement Silo Foundation	100	CY		165.00	315.00	20.00		16500	31500	2000	50000	
Equipment Support Foundation	50	CY		165.00	315.00	20.00		8250	15750	1000	25000	
Slurry Tank Foundation	40	CY		165.00	315.00	20.00		6600	12600	800	20000	
Water Supply Line - 4"	500	FT		26.00	14.00			13000	7000		20000	
Slurry Line - 6"	1000	FT		39.00	21.00			39000	21000		60000	
Control Building	400	FT	40.00				16000				16000	
Control Building Foundation	20	CY		135.00	250.00	15.00		2700	5000	300	8000	
Motor Starters												
a.	7	EA		1300.00	300.00			9100	2100		11200	
b.	2	EA		3700.00	500.00			7400	1000		8400	
Disconnect Switches	5	EA		800.00	200.00			4000	1000		5000	
Conduit, Cable, Control												
a.	7	EA		600.00	800.00			4200	5600		9800	
b.	2	EA		1000.00	1400.00			2000	2800		4800	
Grounding		LS		2300.00	2300.00			2300	2300		4600	
Misc. Wiring		LS		4500.00	4500.00			4500	4500		9000	
							99000	322550	141750	79900	643200	
Working Level D = .15									21263	11985	33248	
							99000	322550	163013	91885	676448	
Burden @ 13% of Labor Cost									21192		21192	
Labor @ 15% of Labor Cost									24452		24452	
Material @ 5% of Material Cost								16128			16128	
Subcontract @ 10% of Sub. Cost							9900				9900	
Total Direct Cost							108900	338678	208656	91885	748119	
Indirects @ 50% of Total Direct Labor Cost									104328		104328	
Profit @ 10% Total Direct Cost											74812	
											927259	
Health & Safety Monitoring @ .08											74181	
Total Field Cost											1001439	
Contingency @ 20% of Total Field Cost											200288	
Engineering @ 15% of Total Field Cost											150216	
TOTAL COST THIS PAGE											1351943	

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CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 7 - Backfilling Solidified Soils
(RAA10T7)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Cover Solidified Soil in Existing Excavated Areas	28000	CY		1.50	2.36	7.07		42000	66080	197960	306040	
Excavate New Area for Additional Solidified Soil	28000	CY			1.93	1.64			54040	45920	99960	
Cover Additional Solidified Soil	28000	CY		1.50	2.36	7.07		42000	66080	197960	306040	
							0	84000	186200	441840	712040	
Working Level D = .15									27930	66276	94206	
							0	84000	214130	508116	806246	
Burden @ 13% of Labor Cost									27837		27837	
Labor @ 15% of Labor Cost									32120		32120	
Material @ 5% of Material Cost								4200			4200	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	88200	274086	508116	870402	
Indirects @ 50% of Total Direct Labor Cost									137043		137043	
Profit @ 10% Total Direct Cost											87040	
											1094486	
Health & Safety Monitoring @ .08											87559	
Total Field Cost											1182045	
Contingency @ 20% of Total Field Cost											236409	
Engineering @ 5% of Total Field Cost											59102	
TOTAL COST THIS PAGE											1477556	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 7 - Backfilling Solidified Soils
(RAA10T7L)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Cover Solidified Soil in Existing Excavated Areas	19600	CY		1.50	2.36	7.07		29400	46256	138572	214228	
Excavate New Area for Additional Solidified Soil	19600	CY			1.93	1.64			37828	32144	69972	
Cover Additional Solidified Soil	19600	CY		1.50	2.36	7.07		29400	46256	138572	214228	
							0	58800	130340	309288	498428	
Working Level D = .15									19551	46393	65944	
							0	58800	149891	355681	564372	
Burden @ 13% of Labor Cost									19486		19486	
Labor @ 15% of Labor Cost									22484		22484	
Material @ 5% of Material Cost								2940			2940	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	61740	191860	355681	609282	
Indirects @ 50% of Total Direct Labor Cost									95930		95930	
Profit @ 10% Total Direct Cost											60928	
											766140	
Health & Safety Monitoring @ .08											61291	
Total Field Cost											827431	
Contingency @ 20% of Total Field Cost											165486	
Engineering @ 5% of Total Field Cost											41372	
TOTAL COST THIS PAGE											1034289	

CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Solidification
TASK 7 - Backfilling Solidified Soils
(RAA10T7H)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
Cover Solidified Soil in Existing Excavated Areas	42000	CY		1.50	2.36	7.07		63000	99120	296940	459060	
Excavate New Area for Additional Solidified Soil	42000	CY			1.93	1.64			81060	68880	149940	
Cover Additional Solidified Soil	42000	CY		1.50	2.36	7.07		63000	99120	296940	459060	
							0	126000	279300	662760	1068060	
Working Level D = .15									41895	99414	141309	
							0	126000	321195	762174	1209369	
Burden @ 13% of Labor Cost									41755		41755	
Labor @ 15% of Labor Cost									48179		48179	
Material @ 5% of Material Cost								6300			6300	
Subcontract @ 10% of Sub. Cost							0				0	
Total Direct Cost							0	132300	411130	762174	1305604	
Indirects @ 50% of Total Direct Labor Cost									205565		205565	
Profit @ 10% Total Direct Cost											130560	
											1641729	
Health & Safety Monitoring @ .08											131338	
Total Field Cost											1773067	
Contingency @ 20% of total Field Cost											354613	
Engineering @ 5% of Total Field Cost											88653	
TOTAL COST THIS PAGE											2216334	

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CALDWELL TRUCKING
Operable Unit 3 - RAA10 Excavation & Onsite Incineration/Slodification
TASK 8 - Site Prep
(RAA10T8)

Item	Qty	Unit	Unit Cost Sub.	Unit Cost Mat.	Unit Cost Labor	Unit Cost Equip.	Total Cost Sub.	Total Cost Mat.	Total Cost Labor	Total Cost Equip.	Total Direct Cost	Comments
E & S CONTROLS												
Revegetation	329.2	MSF		24.60	5.60	4.45		8098	1844	1465	11407	
Silt Fence	4000	LF		2.30	.27			9200	1080		10280	
Chain Link Fence - 6'	4000	LF	10.55				42200				42200	
							42200	17298	2924	1465	63887	
Working Level D = .15									439	220	658	
							42200	17298	3362	1685	64545	
Burden @ 13% of Labor Cost									437		437	
Labor @ 15% of Labor Cost									504		504	
Material @ 5% of Material Cost								865			865	
Subcontract @ 10% of Sub. Cost							4220				4220	
Total Direct Cost							46420	18163	4303	1685	70571	
Indirects @ 50% of Total Direct Labor Cost									2152		2152	
Profit @ 10% Total Direct Cost											7057	
											79780	
Health & Safety Monitoring @ .1											7978	
Total Field Cost											87758	
Contingency @ 20% of Total Field Cost											17552	
Engineering @ 5% of Total Field Cost											4388	
TOTAL COST THIS PAGE											109698	

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