

1761 Funding Study
Site Summary for WDOE Site Managers

Site Name: Maralco **Total Project Cost** \$2.77 million
WDOE Rep: David L. South **Project Duration** Approximately 3 years
phone: (425) 649-7200
email: dsou461@ecy.wa.gov

Site Information:

Site Location: Type (residence, industrial, commercial, remote, etc.) Industrial - Aluminum Recycling

What caused contamination and contaminants of concern: Dross Pile, Baghouse, Former UST

The dross was a by-product of the aluminum scrap refining process consisting of salts, non-metallic residue, and metal oxides. The washed oxides were produced when water-soluble components of the dross (typically salts) were removed from the dross as part of re-processing.

Media Impacted (Soil, GW, surface water, sediment) Soils, GW, sediment, and possibly surface water.

Extent of contamination (Area and depth) 21,200 cubic yards includes dross pile, washed oxides. Assumes 500 cubic yards at former underground storage tank site.

Investigations conducted to date (PA/SI, RI, FS) RI/FS and draft CAP are in progress and are nearing completion. Design documents needed.

Documentation Required (RI, FS, CAP, Design) Draft CAP was prepared on 11/2004. Estimates include limited revisions to RI/FS and CAP work to be completed.

Existing GW monitoring wells? If not, how many are needed (approximate)? Depth to GW? There are existing groundwater wells. Groundwater is approx 5-14 ft. Assume 2 new wells installed to 20 ft.

Soil/sediment type information (if known) Christopher ditch is approximately 500 ft long. Assume samples are collected at 20 ft intervals and the entire ditch is remediated to a depth of 2 ft.

Contaminant Concentrations (if known) Salt content (NaCl and KCl) are the primary environmental concern. Washed oxide content is generally nonhazardous, but assessment of their impact to the creek should be addressed.

Any tanks? If so, how many and what size? Previously removed or abandon in place? Above or below ground? One former tank. Removed from site.

Recommended remedial actions? Excavation and Restoration to Preconstruction Conditions. Assume dross piles and washed oxides plus UST soil is disposed at a Subtitle D Facility and baghouse materials at a Subtitle C Facility. Assume monitoring for 2 years, 4 wells, quarterly. Included additional characterization of dross pile, bag house, and UST area.

If Sediment site: Sediment sampling info, areas of impact, and what is planned for RA (dredging, capping, or both), average depth, and is it accessible by land? Is shore restoration required, habitat restoration? _____

If Treatment system is planned, what is the technology or treatment train? How long will it operate. _____

O&M: Will there be O&M required. If so, how long and what will be the monitoring/sampling plans? Two years monitoring.

Other. _____

Site Cost Detail Report (with Markups)

System:

RACER Version: 10.3.0
Database Location: C:\Documents and Settings\poligonem\Application Data\AECOM\RACER 10.3\Washing Ecology July 2010.mdb

Folder:

Folder Name: NWRO - Sites With Unknown Cost

Project:

Project ID: 01
Project Name: Maralco Site
Project Category: None

Location

State / Country: WASHINGTON
City: SEATTLE

Location Modifier	Default	User
	1.128	1.128

Options

Database: Modified System
Cost Database Date: 2010
Report Option: Fiscal

Site Cost Detail Report (with Markups)

Description

Reference Draft Cleanup Action Plan dated November 2004 for full project description.

Site Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Maralco Site
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: Groundwater

Contaminant

Primary: Metals
Secondary: Fuels

Phase Names

Pre-Study:
Study:
Design:
Removal/Interim Action:
Remedial Action:
Operations & Maintenance:
Long Term Monitoring:
Site Closeout:

Documentation

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project description.
Support Team: Dave South
References: Reference Draft Cleanup Action Plan dated November 2004 for full project description.

Estimator Information

Estimator Name: Mike Poligone
Estimator Title: Senior Project Manager

Site Cost Detail Report (with Markups)

Agency/Org./Office: SAIC

Business Address: 151 Lafayette Dr
Oak Ridge, TN 37831

Telephone Number: (865) 481-8749

Email Address: michael.d.poligone@saic.com

Estimate Prepared Date: 08/24/2010

Estimator Signature: _____

Date: _____

Reviewer Information

Reviewer Name: David L. South

Reviewer Title: Senior Engineer

Agency/Org./Office: Washington State Department of Ecology

Business Address: Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Telephone Number: 425-649-7200

Email Address: dsou461@ecy.wa.gov

Date Reviewed: 08/31/2010

Reviewer Signature: _____

Date: _____

Site Cost Detail Report (with Markups)

Phase Name (Markup Template)	Direct Cost	Sub Overhead	Sub Profit	Prime Overhead	Prime Profit Contingency	Owner Cost	Markup Total	Total
Maralco Study (Ecology - No owner cost,	\$129,204	\$0	\$0	\$107,394	\$18,922	\$59,132	\$190,179	\$319,383
Maralco Site Design								\$57,203
Maralco Site RA (Ecology - No owner cost,	\$1,304,515	\$0	\$0	\$319,280	\$128,410	\$401,281	\$881,073	\$2,185,588
Maralco LTM (System Defaults)	\$87,623	\$0	\$0	\$38,116	\$10,046	\$14,919	\$63,081	\$150,704
Maralco Site Closeout (System Defaults)	\$10,494	\$0	\$0	\$13,292	\$1,903	\$2,826	\$18,021	\$28,515
Total Site Cost	\$1,531,836	\$0	\$0	\$478,083	\$159,281	\$460,413	\$1,209,557	\$2,741,393

Estimate Documentation Report

System:

RACER Version: 10.3.0
Database Location: C:\Documents and Settings\poligonem\Application Data\AECOM\RACER 10.3\Washing Ecology July 2010.mdb

Folder:

Folder Name: NWRO - Sites With Unknown Cost

Project:

Project ID: 01
Project Name: Maralco Site
Project Category: None

Location

State / Country: WASHINGTON
City: SEATTLE

Location Modifier	Default	User
	1.128	1.128

Options

Database: Modified System
Cost Database Date: 2010
Report Option: Fiscal

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project description.

Estimate Documentation Report

Site Documentation:

Site ID: 01
Site Name: Maralco Site
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: Groundwater

Contaminant

Primary: Metals
Secondary: Fuels

Phase Names

Pre-Study:
Study:
Design:
Removal/Interim Action:
Remedial Action:
Operations & Maintenance:
Long Term Monitoring:
Site Closeout:

Documentation

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project description.
Support Team: Dave South
References: Reference Draft Cleanup Action Plan dated November 2004 for full project description.

Estimator Information

Estimator Name: Mike Poligone
Estimator Title: Senior Project Manager
Agency/Org./Office: SAIC
Business Address: 151 Lafayette Dr
Oak Ridge, TN 37831
Telephone Number: (865) 481-8749
Email Address: michael.d.poligone@saic.com
Estimate Prepared Date: 08/24/2010

Estimator Signature: _____ Date: _____

Reviewer Information

Reviewer Name: David L. South
Reviewer Title: Senior Engineer

Estimate Documentation Report

Agency/Org./Office: Washington State Department of Ecology

Business Address: Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Telephone Number: 425-649-7200

Email Address: dsou461@ecy.wa.gov

Date Reviewed: 08/31/2010

Reviewer Signature: _____ Date: _____

Estimated Costs:

Phase Names	Direct Cost	Marked-up Cost
Maralco Study	\$129,204	\$319,383
Maralco Site Design	\$0	\$57,203
Maralco Site RA	\$1,304,515	\$2,185,588
Maralco LTM	\$87,623	\$150,704
Maralco Site Closeout	\$10,494	\$28,515
Total Cost:		\$2,741,393

Estimate Documentation Report

Phase Documentation:

Phase Type: Study
Phase Name: Maralco Study
Description: Applied 25% contingency and no owner cost were included. Corrective Action Plan included in Feasibility Study Cost.

Start Date: July, 2011
Labor Rate Group: System Labor Rate
Analysis Rate Group: System Analysis Rate
Phase Markups: Ecology - No owner cost, 25% contingency

Technology Markups	Markup	% Prime	% Sub.
Remedial Investigation	Yes	100	0
Feasibility Study	Yes	100	0
MONITORING	Yes	100	0
MONITORING	Yes	100	0
MONITORING	Yes	100	0

Total Marked-up Cost: \$319,383

Technologies:

Estimate Documentation Report

Technology Name: Remedial Investigation (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Scoping		Yes	n/a
Site Characterization		Yes	n/a
Other Investigations		No	n/a
Sampling and Analysis (S&A)		No	n/a
Add Groundwater Monitoring Wells		No	n/a
Add MEC Site Characterization && Removal Assessment		No	n/a
Site Distance (One-way)		20	MI
Site Complexity		Low	n/a
Safety Level		D	n/a
Scoping			
Required Parameters			
RI Work Plan		Yes	n/a
Data Quality Objectives		No	n/a
Preliminary Alternatives		No	n/a
Community Relations Activities		No	n/a
RI Supplemental Plans (HASP, FSP, QAPP)		No	n/a
Site Charact.			
Required Parameters			
Fieldwork Support		No	n/a
Evaluate Site Geology/Hydrogeology		No	n/a
Evaluate Site Soils/Surface Hydrology		No	n/a
Evaluate Site Meteorology		No	n/a
Evaluate Populations and Land Usage		No	n/a
Evaluate Site Ecology		No	n/a
Evaluate Nature and Extent of Contamination		No	n/a
Evaluate Contaminant Fate and Transport		No	n/a
Conduct Baseline Risk Assessment		No	n/a
Compose RI Report		Yes	n/a

Comments:

Estimate Documentation Report

Technology Name: Feasibility Study (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Scoping		No	n/a
Screening and Evaluation of Alternatives		No	n/a
Feasibility Report / Record of Decision		Yes	n/a
Treatability Study		No	n/a
Site Complexity		Low	n/a
Level of Study Detail		Narrow	n/a
Level of Study Documentation		Narrow	n/a
Feasibility Report			
Required Parameters			
Prepare Draft Report / Respond to Clients Comments		Yes	n/a
Prepare Final Report/Respond to Regulators' Comment		Yes	n/a
Prepare Proposed Plan / Public Meeting / Public Notification / Remedy Selection		Yes	n/a
Public Meeting / Prepare Transcripts		No	n/a
Record of Decision / Update Administrative Record		Yes	n/a

Comments:

Estimate Documentation Report

Technology Name: Monitoring (# 1)

User Name: MONITORING

Description	Default	Value	UOM
System Definition			
Required Parameters			
Model Name		MONITORING	n/a
Groundwater		No	n/a
Surface Soil		Yes	n/a
Surface Water		No	n/a
Subsurface Soil		No	n/a
Sediment		Yes	n/a
Soil Gas		No	n/a
Air		No	n/a
Site Distance (One-way)		20	MI
Safety Level		D	n/a
Surface Soil			
Required Parameters			
Samples per Event (First Year)		34	n/a
Samples per Event (Out Years)		0	n/a
Number of Events (First Year)		1	n/a
Number of Events (Out Years)		0	n/a
Number of Years (Out Years)		0	n/a
Secondary Parameters			
Primary Analytical Template	System Soil - Fuels	System Soil - Metals	n/a
Secondary Analytical Template	System Soil - Metals	None	n/a
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Data Package/QC	Stage 1	Stage 1	n/a
Number of Samples/Day	10	10	EA
Sediment			
Required Parameters			
Average Sample Depth		1	FT
Average Water Depth		0	FT
Samples per Event (First Year)		25	n/a
Samples per Event (Out Years)		0	n/a
Number of Events (First Year)		1	n/a
Number of Events (Out Years)		0	n/a

Estimate Documentation Report

Technology Name: Monitoring (# 1)

User Name: MONITORING

Description	Default	Value	UOM
Sediment			
Required Parameters			
Number of Years (Out Years)		0	n/a
Secondary Parameters			
Primary Analytical Template	System Soil - Metals	System Soil - Metals	n/a
Secondary Analytical Template	System Soil - Fuels	None	n/a
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Data Package/QC	Stage 1	Stage 1	n/a
Number of Samples/Day	12	12	EA
QA/QC			
Secondary Parameters			
Split Samples	1: 10	1: 10	EA
Field Duplicate Samples	1: 10	1: 10	EA
Rinse Blanks (per Round)	0	0	EA
Trip Blanks (per Day)	0	0	EA
Matrix Spikes/Matrix Spike Duplicates	1: 20	1: 20	EA
Data Management			
Secondary Parameters			
Monitoring Plan	Standard	Standard	n/a
Lab Data Review	Stage 1	Stage 1	n/a
Submit Data Electronically	Yes	Yes	n/a
Monitoring Reports	Abbreviated	Abbreviated	n/a

Comments: Assume 34 samples for dross pile characterization.

Assume 500 lineal foot of ditch sediments are sampled at 20 foot intervals = 25 samples.

Estimate Documentation Report

Technology Name: Monitoring (# 2)

User Name: MONITORING

Description	Default	Value	UOM
System Definition			
Required Parameters			
Model Name		MONITORING	n/a
Groundwater		No	n/a
Surface Soil		No	n/a
Surface Water		No	n/a
Subsurface Soil		Yes	n/a
Sediment		No	n/a
Soil Gas		No	n/a
Air		No	n/a
Site Distance (One-way)		20	MI
Safety Level		D	n/a
Subsurface Soil			
Required Parameters			
Average Sample Depth		8	FT
Samples per Event (First Year)		6	n/a
Samples per Event (Out Years)		0	n/a
Number of Events (First Year)		1	n/a
Number of Events (Out Years)		0	n/a
Number of Years (Out Years)		0	n/a
Secondary Parameters			
Primary Analytical Template	System Soil - Metals	System Soil - Metals	n/a
Secondary Analytical Template	System Soil - Fuels	None	n/a
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Data Package/QC	Stage 1	Stage 1	n/a
Sampling Method	Direct Push Rig	Direct Push Rig	n/a
Number of Samples/Day	15	15	EA
QA/QC			
Secondary Parameters			
Split Samples	1: 10	1: 10	EA
Field Duplicate Samples	1: 10	1: 10	EA
Rinse Blanks (per Round)	0	0	EA
Trip Blanks (per Day)	0	0	EA

Estimate Documentation Report

Technology Name: Monitoring (# 2)

User Name: MONITORING

Description	Default	Value	UOM
QA/QC			
Secondary Parameters			
Matrix Spikes/Matrix Spike Duplicates	1: 20	1: 20	EA
Data Management			
Secondary Parameters			
Monitoring Plan	Standard	Standard	n/a
Lab Data Review	Stage 1	Stage 1	n/a
Submit Data Electronically	Yes	Yes	n/a
Monitoring Reports	Abbreviated	Abbreviated	n/a

Comments: Assume 6 DPT soil and 4 GW samples in former UST area.

Estimate Documentation Report

Technology Name: Monitoring (# 3)

User Name: MONITORING

Description	Default	Value	UOM
System Definition			
Required Parameters			
Model Name		MONITORING	n/a
Groundwater		No	n/a
Surface Soil		Yes	n/a
Surface Water		No	n/a
Subsurface Soil		No	n/a
Sediment		No	n/a
Soil Gas		No	n/a
Air		No	n/a
Site Distance (One-way)		0	MI
Safety Level		D	n/a
Surface Soil			
Required Parameters			
Samples per Event (First Year)		6	n/a
Samples per Event (Out Years)		0	n/a
Number of Events (First Year)		1	n/a
Number of Events (Out Years)		0	n/a
Number of Years (Out Years)		0	n/a
Secondary Parameters			
Primary Analytical Template	System Soil - Fuels	Waste Characterization, Solids	n/a
Secondary Analytical Template	System Soil - Metals	None	n/a
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Data Package/QC	Stage 1	Stage 1	n/a
Number of Samples/Day	10	10	EA
QA/QC			
Secondary Parameters			
Split Samples	1: 10	1: 10	EA
Field Duplicate Samples	1: 10	1: 10	EA
Rinse Blanks (per Round)	0	0	EA
Trip Blanks (per Day)	1	1	EA
Matrix Spikes/Matrix Spike Duplicates	1: 20	1: 20	EA
Data Management			

Estimate Documentation Report

Secondary Parameters

Monitoring Plan	Standard	Standard	n/a
Lab Data Review	Stage 1	Stage 1	n/a
Submit Data Electronically	Yes	Yes	n/a
Monitoring Reports	Abbreviated	Abbreviated	n/a

Comments: Assume 8 samples for waste characterization for baghouse and other piles inside building.

Estimate Documentation Report

Phase Documentation:

Phase Type: Design Percent Method
Phase Name: Maralco Site Design
Description: Includes the design markup for offsite disposal.

Total Capital Costs are the marked up costs for the items listed below, excluding the Professional Labor Management, Administrative Land Use Controls, and Operations and Maintenance technologies. Only the first year costs are included for cost-over-time technologies.

Phase Name	Phase Date	Design Approach	Total Capital Cost	Design %	Design Costs	Design Cost Year
Maralco Site RA	July, 2011	Ex Situ Removal - Off-site Treatment or Disposal	\$2,288,130	2.50	\$57,203	2011

Total Design Cost: \$57,203

Estimate Documentation Report

Phase Documentation:

Phase Type: Remedial Action
Phase Name: Maralco Site RA
Description: Applied 25% contingency and no owner cost were included.

Approach: Ex Situ
Start Date: July, 2011
Labor Rate Group: System Labor Rate
Analysis Rate Group: System Analysis Rate
Phase Markups: Ecology - No owner cost, 25% contingency

Technology Markups	Markup	% Prime	% Sub.
Groundwater Monitoring Well	Yes	100	0
Excavation	Yes	100	0
Load and Haul	Yes	100	0
Off-site Transportation and Waste Disposal	Yes	100	0
Professional Labor Management	Yes	100	0
Excavation	Yes	100	0
Load and Haul	Yes	100	0

Total Marked-up Cost: \$2,185,588

Technologies:

Estimate Documentation Report

Technology Name: Groundwater Monitoring Well (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Number of Aquifers		One	n/a
Include Guard Posts		Yes	n/a
Depth to Groundwater to Aquifer One		15	FT
Number of Wells to Aquifer One		2	EA
Safety Level		D	n/a
Aquifer One			
Required Parameters			
Aquifer One: Average Well Depth		20	LF
Aquifer One: Formation Type		Unconsolidated	n/a
Aquifer One: Drilling Method		Hollow Stem	n/a
Aquifer One: Well Diameter		2 Inch	n/a
Aquifer One: Well Construction Material		PVC Schedule 40	n/a
Aquifer One: Split Spoon Sample Collection		Yes	n/a
Aquifer One: Average Number of Soil Samples per Well		1	EA
Aquifer One: Soil Analytical Template		System Soil - Fuels	n/a
Aquifer One: Safety Level		D	n/a

Comments: Assume 2 additional groundwater monitoring wells installed to a depth of 20 foot.

Estimate Documentation Report

Technology Name: Excavation (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Estimating Method		Volume / Depth	n/a
Volume		22,100	CY
Depth		10	FT
Soil Type		Gravel/Gravel Sand Mixture	n/a
Safety Level		D	n/a
Excavation			
Secondary Parameters			
Existing Cover	Soil/Gravel	Soil/Gravel	n/a
Replacement Cover	Soil/Seeding	Soil/Seeding	n/a
Sidewall Protection	Side Sloping	None	n/a
% of Excavated Material To Be Used as Backfill	0	0	%
Source of Additional Fill	Off Site	None	n/a
Backfill Hauling Distance (one way)	0	0	MI
Dewatering Required	No	No	n/a
Analytical			
Secondary Parameters			
Primary Analytical Template	System Soil - Metals	System Soil - Metals	n/a
Secondary Analytical Template	System Soil - Fuels	System Soil - Fuels	n/a
Number of Sampling Points/Locations	113	113	EA
Number of Composites Submitted to Lab	29	29	EA
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Submit Data Electronically	Yes	Yes	n/a
Data Package / QC	Stage 1	Stage 1	n/a
Lab Data Review	Stage 1	Stage 1	n/a
Sampling Reports	Abbreviated	Abbreviated	n/a

Comments: Volumes based on 2004 Draft Corrective Action Plan except for underground storage tank (UST) volume.

Dross Pile = 19,500 cubic yard (cy).
 Dross in Bldg = 1,000 cy
 Washed Oxides = 1,100 cy
 UST Volume = 500 cy

Estimate Documentation Report

Total Volume =22,100 cy.

Removed excavation component since most of the volume is above grade pile. Loading is included in load and haul.

Technology Name: Load and Haul (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Truck Type		Highway	n/a
Volume		24,300	CY
One-way Haul Distance		18	MI
Dump Charge		42.35	\$/CY
Safety Level		D	n/a

Comments: Volume based on 2004 Corrective Action Plan (CAP) estimate of 22,100 cubic yard (cy) and assume a 10% swell factor or 24,300 cy.

Assume material is disposed in Allied Waste's Subtitle D Roosevelt Landfill in Roosevelt, Washington. Disposal Fees based on quote from Leslie Whiteman of \$38.50/ton. Per Corrective Action Plan, there is a 1 ton/cy conversion for dry dross, so add 10% for moisture to keep dust under control or \$42.35/cy.

Technology Name: Off-site Transportation and Waste Disposal (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Waste Type		Hazardous	n/a
Waste Form		Solid	n/a
Condition of Waste		Non-leaking Drums	n/a
Quantity of Non-Leaking Drums		2	Drums
Stabilization		Required	n/a
Transportation Type		Truck	n/a
Truck Distance (One-way)		275	MI
Safety Level		D	n/a

Comments: Assume disposal in Chemical Waste Management of the Northwest's Subtitle C landfill in Arlington, Oregon

Estimate Documentation Report

Technology Name: Professional Labor Management (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Markedup Construction Cost (\$)		93,356	\$
Percentage	20	20	%
Dollar Amount		18,671	\$

Comments:

Estimate Documentation Report

Technology Name: Excavation (# 2)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Estimating Method		Length / Width / Depth	n/a
Length		500	FT
Width		10	FT
Depth		2	FT
Soil Type		Sand-Silt/Sand-Clay Mixture	n/a
Safety Level		D	n/a
Excavation			
Secondary Parameters			
Existing Cover	Soil/Gravel	Soil/Gravel	n/a
Replacement Cover	Soil/Seeding	Soil/Seeding	n/a
Sidewall Protection	None	None	n/a
% of Excavated Material To Be Used as Backfill	0	0	%
Source of Additional Fill	Off Site	Off Site	n/a
Backfill Hauling Distance (one way)	10	10	MI
Dewatering Required	No	No	n/a
Analytical			
Secondary Parameters			
Primary Analytical Template	System Soil - Metals	System Soil - Metals	n/a
Secondary Analytical Template	System Soil - Fuels	System Soil - Fuels	n/a
Number of Sampling Points/Locations	12	12	EA
Number of Composites Submitted to Lab	5	5	EA
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Submit Data Electronically	Yes	Yes	n/a
Data Package / QC	Stage 1	Stage 1	n/a
Lab Data Review	Stage 1	Stage 1	n/a
Sampling Reports	Abbreviated	Abbreviated	n/a

Comments: Assume 500 ft x 10 ft wide x 2 ft deep of creek is excavated = 370 cubic yards.

Estimate Documentation Report

Technology Name: Load and Haul (# 2)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Truck Type		Highway	n/a
Volume		370	CY
One-way Haul Distance		18	MI
Dump Charge		52	\$/CY
Safety Level		D	n/a

Comments: Volume based assumed 500 ft x 10 ft wide x 2 ft deep of creek = 370 cubic yards or 425 cubic yards assuming 15% swell factor.

Assume material is disposed in Allied Waste's Subtitle D Roosevelt Landfill in Roosevelt, Washington. Disposal Fees based on quote from Leslie Whiteman of \$38.50/ton. Assume a 1.35 tons/cubic yard conversion factor or \$52/cubic yard.

Estimate Documentation Report

Phase Documentation:

Phase Type: Long Term Monitoring
Phase Name: Maralco LTM
Description: Includes 2 years monitoring. Applied 10% contingency and no owner cost were included.

Start Date: July, 2011
Labor Rate Group: System Labor Rate
Analysis Rate Group: System Analysis Rate
Phase Markups: System Defaults

Technology Markups	Markup	% Prime	% Sub.
MONITORING	Yes	100	0

Total Marked-up Cost: \$150,704

Technologies:

Estimate Documentation Report

Technology Name: Monitoring (# 1)

User Name: MONITORING

Description	Default	Value	UOM
System Definition			
Required Parameters			
Model Name		MONITORING	n/a
Groundwater		Yes	n/a
Surface Soil		No	n/a
Surface Water		No	n/a
Subsurface Soil		Yes	n/a
Sediment		No	n/a
Soil Gas		No	n/a
Air		No	n/a
Site Distance (One-way)		20	MI
Safety Level		D	n/a
Groundwater			
Required Parameters			
Average Sample Depth		10	FT
Samples per Event (First Year)		4	n/a
Samples per Event (Out Years)		4	n/a
Number of Events (First Year)		4	n/a
Number of Events (Out Years)		4	n/a
Number of Years (Out Years)		1	n/a
Secondary Parameters			
Primary Analytical Template	System Water - Metals	System Water - Metals	n/a
Secondary Analytical Template	System Water - Fuels	System Water - Fuels	n/a
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Data Package/QC	Stage 1	Stage 1	n/a
Sampling Method	Existing Wells - Low Flow Pump	Existing Wells - Low Flow Pump	n/a
Number of Wells/Day	8	8	EA
Contain Purge Water	Yes	Yes	n/a
Subsurface Soil			
Required Parameters			
Average Sample Depth		8	FT
Samples per Event (First Year)		6	n/a

Estimate Documentation Report

Technology Name: Monitoring (# 1)

User Name: MONITORING

Description	Default	Value	UOM
Subsurface Soil			
Required Parameters			
Samples per Event (Out Years)		0	n/a
Number of Events (First Year)		1	n/a
Number of Events (Out Years)		0	n/a
Number of Years (Out Years)		0	n/a
Secondary Parameters			
Primary Analytical Template	System Soil - Metals	System Soil - Metals	n/a
Secondary Analytical Template	System Soil - Fuels	None	n/a
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Data Package/QC	Stage 1	Stage 1	n/a
Sampling Method	Direct Push Rig	Direct Push Rig	n/a
Number of Samples/Day	15	15	EA
QA/QC			
Secondary Parameters			
Split Samples	1: 10	1: 10	EA
Field Duplicate Samples	1: 10	1: 10	EA
Rinse Blanks (per Round)	1	1	EA
Trip Blanks (per Day)	1	1	EA
Matrix Spikes/Matrix Spike Duplicates	1: 20	1: 20	EA
Data Management			
Secondary Parameters			
Monitoring Plan	Standard	Standard	n/a
Lab Data Review	Stage 1	Stage 1	n/a
Submit Data Electronically	Yes	Yes	n/a
Monitoring Reports	Abbreviated	Abbreviated	n/a

Comments: Assume 6 DPT soil and 4 GW samples in former UST area.

Estimate Documentation Report

Phase Documentation:

Phase Type: Site Closeout
Phase Name: Maralco Site Closeout
Description: Applied 25% contingency and no owner cost were included.

Start Date: July, 2011
Labor Rate Group: System Labor Rate
Analysis Rate Group: System Analysis Rate
Phase Markups: System Defaults

Technology Markups	Markup	% Prime	% Sub.
Site Close-Out Documentation	Yes	100	0
WELL ABANDONMENT	Yes	100	0

Total Marked-up Cost: \$28,515

Technologies:

Estimate Documentation Report

Technology Name: Site Close-Out Documentation (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Meetings		No	n/a
Work Plans and Reports		Yes	n/a
Documents		Yes	n/a
Site Close-Out Complexity		Moderate	n/a
Work Plans & Reports			
Required Parameters			
Work Plans		No	n/a
Reports		Yes	n/a
Draft Close-Out Report		Yes	n/a
Draft Final Close-Out Report		Yes	n/a
Final Close-Out Report		Yes	n/a
Progress Reports		Yes	n/a
Project Duration	10	10	months
Documents			
Required Parameters			
Draft Decision Document		Yes	n/a
Draft Final Decision Document		Yes	n/a
Final Decision Document		Yes	n/a
Long Term Document Storage		No	n/a

Comments:

Technology Name: User Defined Estimate (# 1)

User Name: WELL ABANDONMENT

Description	Default	Value	UOM
System Definition			
Required Parameters			
Model Name		WELL ABANDONMENT	n/a
WBS Type		ECES	n/a
Selected WBS		4.05.00	n/a
Safety Level		D	n/a

Comments: Assume 10 wells are closed.

Phase Technology Cost Detail Report (with Markups)

System:

RACER Version: 10.3.0
Database Location: C:\Documents and Settings\poligonem\Application Data\AECOM\RACER 10.3\Washing Ecology July 2010.mdb

Folder:

Folder Name: NWRO - Sites With Unknown Cost

Project:

Project ID: 01
Project Name: Maralco Site
Project Category: None

Location

State / Country: WASHINGTON
City: SEATTLE

Location Modifier	Default	User
	1.128	1.128

Options

Database: Modified System
Cost Database Date: 2010
Report Option: Fiscal

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project

Phase Technology Cost Detail Report (with Markups)

description.

Phase Technology Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Maralco Site
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: Groundwater

Contaminant

Primary: Metals
Secondary: Fuels

Phase Names

Pre-Study:
Study:
Design:
Removal/Interim Action:
Remedial Action:
Operations & Maintenance:
Long Term Monitoring:
Site Closeout:

Documentation

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project description.
Support Team: Dave South
References: Reference Draft Cleanup Action Plan dated November 2004 for full project description.

Estimator Information

Estimator Name: Mike Poligone
Estimator Title: Senior Project Manager

Phase Technology Cost Detail Report (with Markups)

Agency/Org./Office: SAIC

Business Address: 151 Lafayette Dr
Oak Ridge, TN 37831

Telephone Number: (865) 481-8749

Email Address: michael.d.poligone@saic.com

Estimate Prepared Date: 08/24/2010

Estimator Signature: _____

Date: _____

Reviewer Information

Reviewer Name: David L. South

Reviewer Title: Senior Engineer

Agency/Org./Office: Washington State Department of Ecology

Business Address: Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Telephone Number: 425-649-7200

Email Address: dsou461@ecy.wa.gov

Date Reviewed: 08/31/2010

Reviewer Signature: _____

Date: _____

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Study
Phase Name: Maralco Study
Description: Applied 25% contingency and no owner cost were included. Corrective Action Plan included in Feasibility Study Cost.

Start Date: July, 2011
Labor Rate Group: System Labor Rate
Analysis Rate Group: System Analysis Rate
Phase Markups: Ecology - No owner cost, 25% contingency

Technology Markups	Markup	% Prime	% Sub.
Remedial Investigation	Yes	100	0
Feasibility Study	Yes	100	0
MONITORING	Yes	100	0
MONITORING	Yes	100	0
MONITORING	Yes	100	0

Phase Technology Cost Detail Report (with Markups)

Technology: Remedial Investigation

Element: Scoping

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33010104	Sample collection, vehicle mileage charge, car or van	40.00	MI	0.00	0.00	0.00	0.58	\$23.20	<input checked="" type="checkbox"/>	<input type="checkbox"/>
33220102	Project Manager	2.00	HR	0.00	224.53	0.00	0.00	\$449.06	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	5.00	HR	0.00	199.89	0.00	0.00	\$999.46	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220106	Staff Engineer	5.00	HR	0.00	264.88	0.00	0.00	\$1,324.40	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	10.00	HR	0.00	227.46	0.00	0.00	\$2,274.57	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220109	Staff Scientist	20.00	HR	0.00	129.98	0.00	0.00	\$2,599.51	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	1.00	HR	0.00	225.30	0.00	0.00	\$225.30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220111	Certified Industrial Hygienist	2.00	HR	0.00	227.71	0.00	0.00	\$455.43	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	6.00	HR	0.00	115.81	0.00	0.00	\$694.85	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	4.00	HR	0.00	127.10	0.00	0.00	\$508.40	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	102.70	0.00	0.00	0.00	\$102.70	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$9,656.89		

Element: Site Characterization

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220102	Project Manager	4.00	HR	0.00	224.53	0.00	0.00	\$898.13	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220103	Office Manager	2.00	HR	0.00	284.90	0.00	0.00	\$569.80	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	12.00	HR	0.00	199.89	0.00	0.00	\$2,398.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220106	Staff Engineer	32.00	HR	0.00	264.88	0.00	0.00	\$8,476.14	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	12.00	HR	0.00	227.46	0.00	0.00	\$2,729.49	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Technology Cost Detail Report (with Markups)

Element: Site Characterization

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220109	Staff Scientist	100.00	HR	0.00	129.98	0.00	0.00	\$12,997.57	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	8.00	HR	0.00	225.30	0.00	0.00	\$1,802.41	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220111	Certified Industrial Hygienist	4.00	HR	0.00	227.71	0.00	0.00	\$910.86	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	20.00	HR	0.00	134.70	0.00	0.00	\$2,693.97	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	32.00	HR	0.00	115.81	0.00	0.00	\$3,705.85	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	8.00	HR	0.00	127.10	0.00	0.00	\$1,016.81	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	411.63	0.00	0.00	0.00	\$411.63	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$38,611.33		
Total 1st Year Technology Cost								\$48,268.22		

Phase Technology Cost Detail Report (with Markups)

Technology: Feasibility Study

Element: Feasibility Report / Record of Decision

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220102	Project Manager	13.00	HR	0.00	224.53	0.00	0.00	\$2,918.91	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220103	Office Manager	10.00	HR	0.00	284.90	0.00	0.00	\$2,848.99	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	62.00	HR	0.00	199.89	0.00	0.00	\$12,393.27	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220106	Staff Engineer	63.00	HR	0.00	264.88	0.00	0.00	\$16,687.40	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	26.00	HR	0.00	227.46	0.00	0.00	\$5,913.89	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	9.00	HR	0.00	225.30	0.00	0.00	\$2,027.71	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220111	Certified Industrial Hygienist	3.00	HR	0.00	227.71	0.00	0.00	\$683.14	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	34.00	HR	0.00	115.81	0.00	0.00	\$3,937.46	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	8.00	HR	0.00	127.10	0.00	0.00	\$1,016.81	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	521.85	0.00	0.00	0.00	\$521.85	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$48,949.43		
Total 1st Year Technology Cost								\$48,949.43		

Phase Technology Cost Detail Report (with Markups)

Technology: MONITORING

Element: Surface Soil

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33020401	Disposable Materials per Sample	44.00	EA	16.34	0.00	0.00	0.00	\$718.96	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	44.00	EA	21.33	0.00	0.00	0.00	\$938.32	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021709	Testing, TAL metals (6010/7000s)	44.00	EA	0.00	0.00	0.00	358.87	\$15,790.24	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	5.00	HR	0.00	224.53	0.00	0.00	\$1,122.66	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	80.00	HR	0.00	134.70	0.00	0.00	\$10,775.86	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$29,346.04		

Element: Sediment

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33020401	Disposable Materials per Sample	33.00	EA	16.34	0.00	0.00	0.00	\$539.22	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	33.00	EA	21.33	0.00	0.00	0.00	\$703.74	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020602	Sludge sampler, stainless steel, thread on, 3.25" x 12"	1.00	EA	1,064.69	0.00	0.00	0.00	\$1,064.69	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021709	Testing, TAL metals (6010/7000s)	33.00	EA	0.00	0.00	0.00	358.87	\$11,842.68	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	4.00	HR	0.00	224.53	0.00	0.00	\$898.13	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	59.00	HR	0.00	134.70	0.00	0.00	\$7,947.20	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$22,995.66		

Phase Technology Cost Detail Report (with Markups)

Element: Data Management

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220102	Project Manager	14.00	HR	0.00	224.53	0.00	0.00	\$3,143.44	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	30.00	HR	0.00	199.89	0.00	0.00	\$5,996.74	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	84.00	HR	0.00	227.46	0.00	0.00	\$19,106.42	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220109	Staff Scientist	80.00	HR	0.00	129.98	0.00	0.00	\$10,398.05	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	22.00	HR	0.00	225.30	0.00	0.00	\$4,956.63	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	6.00	HR	0.00	134.70	0.00	0.00	\$808.19	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	18.00	HR	0.00	115.81	0.00	0.00	\$2,084.54	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	14.00	HR	0.00	127.10	0.00	0.00	\$1,779.41	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	650.23	0.00	0.00	0.00	\$650.23	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$48,923.66		

Element: General Monitoring

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33010104	Sample collection, vehicle mileage charge, car or van	40.00	MI	0.00	0.00	0.00	0.58	\$23.20	<input checked="" type="checkbox"/>	<input type="checkbox"/>
33022043	Overnight delivery service, 51 to 70 lb packages	360.00	LB	0.00	0.00	0.00	5.85	\$2,105.12	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	10.00	HR	0.00	134.70	0.00	0.00	\$1,346.98	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$3,475.30		
Total 1st Year Technology Cost								\$104,740.67		

Phase Technology Cost Detail Report (with Markups)

Technology: MONITORING

Element: Subsurface Soil

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33020401	Disposable Materials per Sample	9.00	EA	16.34	0.00	0.00	0.00	\$147.06	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	9.00	EA	21.33	0.00	0.00	0.00	\$191.93	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020667	Direct Push Rig, Truck Mounted, Non Hydraulic, Includes Labor, Sampling, Decontamination	1.00	DAY	0.00	0.00	0.00	1,065.96	\$1,065.96	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020668	Mobilize Direct Push Rig and Crew	1.00	DAY	0.00	0.00	0.00	304.56	\$304.56	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020669	Demobilize Direct Push Rig and Crew	1.00	EA	0.00	0.00	0.00	304.56	\$304.56	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021709	Testing, TAL metals (6010/7000s)	9.00	EA	0.00	0.00	0.00	358.87	\$3,229.82	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	2.00	HR	0.00	224.53	0.00	0.00	\$449.06	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	24.00	HR	0.00	134.70	0.00	0.00	\$3,232.76	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$8,925.71		

Element: Data Management

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220102	Project Manager	9.00	HR	0.00	224.53	0.00	0.00	\$2,020.78	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	30.00	HR	0.00	199.89	0.00	0.00	\$5,996.74	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	57.00	HR	0.00	227.46	0.00	0.00	\$12,965.07	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220109	Staff Scientist	80.00	HR	0.00	129.98	0.00	0.00	\$10,398.05	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Technology Cost Detail Report (with Markups)

Element: Data Management

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220110	QA/QC Officer	17.00	HR	0.00	225.30	0.00	0.00	\$3,830.12	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	1.00	HR	0.00	134.70	0.00	0.00	\$134.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	13.00	HR	0.00	115.81	0.00	0.00	\$1,505.50	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	9.00	HR	0.00	127.10	0.00	0.00	\$1,143.91	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	511.78	0.00	0.00	0.00	\$511.78	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$38,506.66		

Element: General Monitoring

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33010104	Sample collection, vehicle mileage charge, car or van	40.00	MI	0.00	0.00	0.00	0.58	\$23.20	<input checked="" type="checkbox"/>	<input type="checkbox"/>
33022043	Overnight delivery service, 51 to 70 lb packages	60.00	LB	0.00	0.00	0.00	5.85	\$350.85	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	10.00	HR	0.00	134.70	0.00	0.00	\$1,346.98	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$1,721.04		
Total 1st Year Technology Cost								\$49,153.41		

Phase Technology Cost Detail Report (with Markups)

Technology: MONITORING

Element: Surface Soil

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33020401	Disposable Materials per Sample	10.00	EA	16.34	0.00	0.00	0.00	\$163.40	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	10.00	EA	21.33	0.00	0.00	0.00	\$213.26	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020671	En Core Soil Sampler (5 or 25 gram)	10.00	EA	15.23	0.00	0.00	0.00	\$152.28	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021620	Testing, TAL metals (6010/7000s)	10.00	EA	0.00	0.00	0.00	358.87	\$3,588.69	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021702	TCLP (RCRA) (EPA 1311), Soil Analysis	10.00	EA	0.00	0.00	0.00	167.51	\$1,675.08	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021717	Pesticides/PCBs (SW 3550B/SW 8081/8082), Soil Analysis	10.00	EA	0.00	0.00	0.00	326.34	\$3,263.39	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021719	Testing, soil & sediment analysis, chlorinated phenoxy acid herbicides EPA 8150	10.00	EA	0.00	0.00	0.00	387.11	\$3,871.11	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021720	Testing, purgeable organics (624, 8260)	10.00	EA	0.00	0.00	0.00	175.88	\$1,758.83	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021739	Testing, semi-volatile organics, pkd. column (8250)	10.00	EA	0.00	0.00	0.00	579.44	\$5,794.44	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021750	Testing, paint filter liquids test (9095)	10.00	EA	0.00	0.00	0.00	38.85	\$388.45	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021756	Testing, RCRA evaluations, corrosivity, ignitability & reactivity, ignitability (1010)	10.00	EA	0.00	0.00	0.00	44.05	\$440.55	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Technology Cost Detail Report (with Markups)

Element: Surface Soil

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33021757	Testing, RCRA evaluations, corrosivity, ignitability & reactivity, corrosivity (1110, NACE)	10.00	EA	0.00	0.00	0.00	36.27	\$362.65	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021758	Testing, RCRA evaluations, corrosivity, ignitability & reactivity, reactivity (cyanide/sulfide)	10.00	EA	0.00	0.00	0.00	101.16	\$1,011.58	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	2.00	HR	0.00	224.53	0.00	0.00	\$449.06	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	23.00	HR	0.00	134.70	0.00	0.00	\$3,098.06	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$26,230.83		

Element: Data Management

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220102	Project Manager	9.00	HR	0.00	224.53	0.00	0.00	\$2,020.78	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	30.00	HR	0.00	199.89	0.00	0.00	\$5,996.74	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	57.00	HR	0.00	227.46	0.00	0.00	\$12,965.07	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220109	Staff Scientist	80.00	HR	0.00	129.98	0.00	0.00	\$10,398.05	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	17.00	HR	0.00	225.30	0.00	0.00	\$3,830.12	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	1.00	HR	0.00	134.70	0.00	0.00	\$134.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	13.00	HR	0.00	115.81	0.00	0.00	\$1,505.50	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	9.00	HR	0.00	127.10	0.00	0.00	\$1,143.91	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	511.78	0.00	0.00	0.00	\$511.78	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$38,506.66		

Phase Technology Cost Detail Report (with Markups)

Element: General Monitoring

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33022043	Overnight delivery service, 51 to 70 lb packages	420.00	LB	0.00	0.00	0.00	5.85	\$2,455.97	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	8.00	HR	0.00	134.70	0.00	0.00	\$1,077.59	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$3,533.56		
Total 1st Year Technology Cost								\$68,271.06		
Total Phase Cost								\$319,382.79		

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Design Percent Method
Phase Name: Maralco Site Design
Description: Includes the design markup for offsite disposal.

Total Capital Costs are the marked up costs for the items listed below, excluding the Professional Labor Management, Administrative Land Use Controls, and Operations and Maintenance technologies. Only the first year costs are included for cost-over-time technologies.

Phase Name	Phase Date	Design Approach	Total Capital Cost	Design %	Design Costs	Design Cost Year
Maralco Site RA	July, 2011	Ex Situ Removal - Off-site Treatment or Disposal	\$2,288,130	2.50	\$57,203	2011

Phase Technology Cost Detail Report (with Markups)

Technology: Design Costs

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
32032001	Remedial Design Professional Labor	1.00	EA	0.00	57,203.00	0.00	0.00	\$57,203.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$57,203.00		
Total 1st Year Technology Cost								\$57,203.00		
Total Phase Cost								\$57,203.00		

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Remedial Action
 Phase Name: Maralco Site RA
 Description: Applied 25% contingency and no owner cost were included.

Approach: Ex Situ

Start Date: July, 2011

Labor Rate Group: System Labor Rate

Analysis Rate Group: System Analysis Rate

Phase Markups: Ecology - No owner cost, 25% contingency

Technology Markups	Markup	% Prime	% Sub.
Groundwater Monitoring Well	Yes	100	0
Excavation	Yes	100	0
Load and Haul	Yes	100	0
Off-site Transportation and Waste Disposal	Yes	100	0
Professional Labor Management	Yes	100	0
Excavation	Yes	100	0
Load and Haul	Yes	100	0

Phase Technology Cost Detail Report (with Markups)

Technology: Groundwater Monitoring Well

Element: Aquifer 1

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33020303	Organic Vapor Analyzer Rental, per Day	1.00	DAY	0.00	0.00	0.00	52.57	\$52.57	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021722	Polynuclear Aromatic Hydrocarbons(PAH) (SW 8310),w/prep, Soil Analysis	2.00	EA	0.00	0.00	0.00	266.14	\$532.28	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021732	Testing, soil & sediment analysis, total petroleum hydrocarbons (TPH)	2.00	EA	0.00	0.00	0.00	101.21	\$202.41	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021776	BTEX/MTBE/TVPH (EPA 8021B/8015B), Soil Analysis	2.00	EA	0.00	0.00	0.00	134.33	\$268.65	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	1.00	DAY	39.48	925.86	0.00	0.00	\$965.34	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	16.00	HR	0.00	134.70	0.00	0.00	\$2,155.17	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33230101	2" PVC, Schedule 40, Well Casing	20.00	LF	1.96	7.72	8.24	0.00	\$358.37	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33230201	2" PVC, Schedule 40, Well Screen	20.00	LF	6.51	7.72	8.24	0.00	\$449.36	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33230301	2" PVC, Well Plug	2.00	EA	21.13	23.15	24.72	0.00	\$138.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231101	Hollow Stem Auger, 8" Dia Borehole, Depth <= 100 ft	42.00	LF	0.00	26.06	43.46	0.00	\$2,919.90	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231173	Split Spoon Sampling	10.00	LF	0.00	20.49	10.22	0.00	\$307.11	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231401	2" Screen, Filter Pack	24.00	LF	14.40	5.96	6.36	0.00	\$641.29	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231811	2" Well, Portland Cement Grout	14.00	LF	1.88	0.00	0.00	0.00	\$26.32	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33232101	2" Well, Bentonite Seal	2.00	EA	232.23	153.92	164.38	0.00	\$1,101.07	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Technology Cost Detail Report (with Markups)

Total Element Cost

\$10,117.85

Element: General Aquifers

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33010101	Mobilize/DeMobilize Drilling Rig & Crew	1.00	LS	0.00	2,315.03	1,354.80	0.00	\$3,669.83	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231178	Move Rig/Equipment Around Site	1.00	EA	144.48	332.79	194.75	0.00	\$672.01	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231182	DOT steel drums, 55 gal., open, 17C	2.00	EA	181.20	0.00	0.00	0.00	\$362.40	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231504	Surface Pad, Concrete, 2' x 2' x 4"	2.00	EA	89.94	25.88	0.31	0.00	\$232.25	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33232301	5' Guard Posts, Cast Iron, Concrete Fill	8.00	EA	139.87	138.94	0.08	0.00	\$2,231.09	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$7,167.58		
Total 1st Year Technology Cost								\$17,285.42		

Phase Technology Cost Detail Report (with Markups)

Technology: Excavation

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
18050402	Seeding, Vegetative Cover	1.64	ACR	5,512.98	782.90	337.24	0.00	\$10,878.33	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020303	Organic Vapor Analyzer Rental, per Day	9.00	DAY	0.00	0.00	0.00	52.57	\$473.16	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020401	Disposable Materials per Sample	113.00	EA	16.34	0.00	0.00	0.00	\$1,846.41	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021709	Testing, TAL metals (6010/7000s)	29.00	EA	0.00	0.00	0.00	358.87	\$10,407.21	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021722	Polynuclear Aromatic Hydrocarbons(PAH) (SW 8310),w/prep, Soil Analysis	29.00	EA	0.00	0.00	0.00	292.75	\$8,489.86	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021732	Testing, soil & sediment analysis, total petroleum hydrocarbons (TPH)	29.00	EA	0.00	0.00	0.00	111.33	\$3,228.45	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021776	BTEX/MTBE/TVPH (EPA 8021B/8015B), Soil Analysis	29.00	EA	0.00	0.00	0.00	147.76	\$4,285.01	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	7.00	HR	0.00	224.53	0.00	0.00	\$1,571.72	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	22.00	HR	0.00	227.46	0.00	0.00	\$5,004.06	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	3.00	HR	0.00	225.30	0.00	0.00	\$675.90	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	3.00	HR	0.00	134.70	0.00	0.00	\$404.09	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	3.00	HR	0.00	115.81	0.00	0.00	\$347.42	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	3.00	HR	0.00	127.10	0.00	0.00	\$381.30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$47,992.92		
Total 1st Year Technology Cost								\$47,992.92		

Phase Technology Cost Detail Report (with Markups)

Technology: Load and Haul

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
17020401	Dump Charges	24,300.00	EA	71.47	0.00	0.00	0.00	\$1,736,614.69	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17030226	988, 7.0 CY, Wheel Loader	82.00	HR	0.00	128.69	261.49	0.00	\$31,995.42	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030289	32 CY, Semi Dump	1,075.00	HR	0.00	120.09	120.03	0.00	\$258,130.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$2,026,740.81		
Total 1st Year Technology Cost								\$2,026,740.81		

Phase Technology Cost Detail Report (with Markups)

Technology: Off-site Transportation and Waste Disposal

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33190103	Load Drums on Disposal Vehicle	2.00	EA	0.00	8.77	2.71	0.00	\$22.96	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33190204	Transport 55 Gallon Drums of Hazardous Waste, Max 80 drums (per Mile)	275.00	MI	0.00	0.00	0.00	2.92	\$804.04	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33190303	Minimum Charges for Drummed Shipments	2.00	EA	0.00	0.00	0.00	881.18	\$1,762.37	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33190317	Waste Stream Evaluation Fee, Not Including 50% Rebate on 1st Shipment	1.00	EA	0.00	0.00	0.00	730.35	\$730.35	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33197208	Landfill Drummed Solid Waste Requiring Stabilization, 55 Gallon Drum	2.00	EA	0.00	0.00	0.00	298.47	\$596.94	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$3,916.65		
Total 1st Year Technology Cost								\$3,916.65		

Phase Technology Cost Detail Report (with Markups)

Technology: Professional Labor Management

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220149	Lump Sum Percentage Labor Cost	1.00	LS	0.00	18,671.00	0.00	0.00	\$18,671.00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Total Element Cost								\$18,671.00		
Total 1st Year Technology Cost								\$18,671.00		

Phase Technology Cost Detail Report (with Markups)

Technology: Excavation

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
17020416	12 CY Dump Truck Haul/Hour	24.00	HR	0.00	120.09	75.52	0.00	\$4,694.71	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030276	Excavate and load, bank measure, medium material, 3/4 C.Y. bucket, hydraulic excavator	371.00	BCY	0.00	5.37	1.75	0.00	\$2,643.66	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030423	Unclassified Fill, 6" Lifts, Off-Site, Includes Delivery, Spreading, and Compaction	481.48	CY	13.78	1.70	1.48	0.02	\$8,176.13	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18050402	Seeding, Vegetative Cover	0.14	ACR	5,512.98	782.90	337.24	0.00	\$928.64	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020303	Organic Vapor Analyzer Rental, per Day	2.00	DAY	0.00	0.00	0.00	52.57	\$105.15	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020401	Disposable Materials per Sample	12.00	EA	16.34	0.00	0.00	0.00	\$196.08	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021709	Testing, TAL metals (6010/7000s)	5.00	EA	0.00	0.00	0.00	358.87	\$1,794.35	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021722	Polynuclear Aromatic Hydrocarbons(PAH) (SW 8310),w/prep, Soil Analysis	5.00	EA	0.00	0.00	0.00	292.75	\$1,463.77	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021732	Testing, soil & sediment analysis, total petroleum hydrocarbons (TPH)	5.00	EA	0.00	0.00	0.00	111.33	\$556.63	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021776	BTEX/MTBE/TVPH (EPA 8021B/8015B), Soil Analysis	5.00	EA	0.00	0.00	0.00	147.76	\$738.79	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	5.00	HR	0.00	224.53	0.00	0.00	\$1,122.66	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	5.00	HR	0.00	227.46	0.00	0.00	\$1,137.29	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	1.00	HR	0.00	225.30	0.00	0.00	\$225.30	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Technology Cost Detail Report (with Markups)

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220112	Field Technician	1.00	HR	0.00	134.70	0.00	0.00	\$134.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	1.00	HR	0.00	115.81	0.00	0.00	\$115.81	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	1.00	HR	0.00	127.10	0.00	0.00	\$127.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$24,160.75		
Total 1st Year Technology Cost								\$24,160.75		

Phase Technology Cost Detail Report (with Markups)

Technology: Load and Haul

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
17020401	Dump Charges	370.00	EA	87.75	0.00	0.00	0.00	\$32,467.50	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17030220	910, 1.25 CY, Wheel Loader	7.00	HR	0.00	128.69	55.22	0.00	\$1,287.37	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030284	8 CY, Dump Truck	65.00	HR	0.00	120.09	80.92	0.00	\$13,065.71	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$46,820.58		
Total 1st Year Technology Cost								\$46,820.58		
Total Phase Cost								\$2,185,588.13		

Phase Technology Cost Detail Report (with Markups)

System:

RACER Version: 10.3.0
Database Location: C:\Documents and Settings\poligonem\Application Data\AECOM\RACER 10.3\Washing Ecology July 2010.mdb

Folder:

Folder Name: NWRO - Sites With Unknown Cost

Project:

Project ID: 01
Project Name: Maralco Site
Project Category: None

Location

State / Country: WASHINGTON
City: SEATTLE

Location Modifier	Default	User
	1.128	1.128

Options

Database: Modified System
Cost Database Date: 2010
Report Option: Fiscal

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project

Phase Technology Cost Detail Report (with Markups)

description.

Phase Technology Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Maralco Site
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: Groundwater

Contaminant

Primary: Metals
Secondary: Fuels

Phase Names

Pre-Study:
Study:
Design:
Removal/Interim Action:
Remedial Action:
Operations & Maintenance:
Long Term Monitoring:
Site Closeout:

Documentation

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project description.
Support Team: Dave South
References: Reference Draft Cleanup Action Plan dated November 2004 for full project description.

Estimator Information

Estimator Name: Mike Poligone
Estimator Title: Senior Project Manager

Phase Technology Cost Detail Report (with Markups)

Agency/Org./Office: SAIC

Business Address: 151 Lafayette Dr
Oak Ridge, TN 37831

Telephone Number: (865) 481-8749

Email Address: michael.d.poligone@saic.com

Estimate Prepared Date: 08/24/2010

Estimator Signature: _____ Date: _____

Reviewer Information

Reviewer Name: David L. South

Reviewer Title: Senior Engineer

Agency/Org./Office: Washington State Department of Ecology

Business Address: Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Telephone Number: 425-649-7200

Email Address: dsou461@ecy.wa.gov

Date Reviewed: 08/31/2010

Reviewer Signature: _____ Date: _____

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Long Term Monitoring
Phase Name: Maralco LTM
Description: Includes 2 years monitoring. Applied 10% contingency and no owner cost were included.

Start Date: July, 2011
Labor Rate Group: System Labor Rate
Analysis Rate Group: System Analysis Rate
Phase Markups: System Defaults

Technology Markups	Markup	% Prime	% Sub.
MONITORING	Yes	100	0

Phase Technology Cost Detail Report (with Markups)

Technology: MONITORING

Element: Groundwater

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33020401	Disposable Materials per Sample	29.00	EA	14.51	0.00	0.00	0.00	\$420.79	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	29.00	EA	18.94	0.00	0.00	0.00	\$549.18	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020561	Lysimeter accessories, nylon tubing, 1/4" OD	185.00	LF	0.22	0.00	0.00	0.00	\$40.65	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021509	Monitor well sampling equipment, rental, water quality testing parameter device rental	4.00	WK	0.00	0.00	0.00	405.67	\$1,622.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021603	Testing, dissolved solids	29.00	EA	0.00	0.00	0.00	25.87	\$750.15	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021604	Testing, suspended solids	29.00	EA	0.00	0.00	0.00	20.24	\$587.09	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021620	Testing, TAL metals (6010/7000s)	29.00	EA	0.00	0.00	0.00	318.68	\$9,241.60	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021694	Total Petroleum Hydrocarbons (SW8015B), Water Analysis	29.00	EA	0.00	0.00	0.00	131.72	\$3,819.75	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022124	Testing, RCRA evaluations, EP toxicity analysis, metals (6010,7470)	1.00	EA	0.00	0.00	0.00	158.01	\$158.01	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022134	Testing, PAH (SW3510/SW8310)	29.00	EA	0.00	0.00	0.00	259.97	\$7,538.99	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022150	BTEX/MTBE/TVPH (EPA 8021B/8015B), Water Analysis	29.00	EA	0.00	0.00	0.00	131.21	\$3,805.08	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33190403	DOT steel drums, 55 gal., closed only, 17H	4.00	EA	95.92	0.00	0.00	0.00	\$383.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	6.00	HR	0.00	199.38	0.00	0.00	\$1,196.30	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Technology Cost Detail Report (with Markups)

Element: Groundwater

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220112	Field Technician	90.00	HR	0.00	119.61	0.00	0.00	\$10,765.09	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33230614	Peristaltic Pump, Weekly Rental	4.00	WK	0.00	0.00	0.00	96.92	\$387.66	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$41,266.74		

Element: Subsurface Soil

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33020401	Disposable Materials per Sample	11.00	EA	14.51	0.00	0.00	0.00	\$159.61	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	11.00	EA	18.94	0.00	0.00	0.00	\$208.31	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020667	Direct Push Rig, Truck Mounted, Non Hydraulic, Includes Labor, Sampling, Decontamination	1.00	DAY	0.00	0.00	0.00	946.57	\$946.57	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020668	Mobilize Direct Push Rig and Crew	1.00	DAY	0.00	0.00	0.00	270.45	\$270.45	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020669	Demobilize Direct Push Rig and Crew	1.00	EA	0.00	0.00	0.00	270.45	\$270.45	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021709	Testing, TAL metals (6010/7000s)	11.00	EA	0.00	0.00	0.00	318.68	\$3,505.43	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	2.00	HR	0.00	199.38	0.00	0.00	\$398.77	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	30.00	HR	0.00	119.61	0.00	0.00	\$3,588.36	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$9,347.95		

Phase Technology Cost Detail Report (with Markups)

Element: Data Management

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220102	Project Manager	11.00	HR	0.00	199.38	0.00	0.00	\$2,193.22	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	30.00	HR	0.00	177.50	0.00	0.00	\$5,325.11	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	66.00	HR	0.00	201.98	0.00	0.00	\$13,330.82	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220109	Staff Scientist	80.00	HR	0.00	115.42	0.00	0.00	\$9,233.47	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	19.00	HR	0.00	200.07	0.00	0.00	\$3,801.29	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	3.00	HR	0.00	119.61	0.00	0.00	\$358.84	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	15.00	HR	0.00	102.84	0.00	0.00	\$1,542.56	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	11.00	HR	0.00	112.87	0.00	0.00	\$1,241.52	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	498.74	0.00	0.00	0.00	\$498.74	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$37,525.57		

Element: General Monitoring

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33010104	Sample collection, vehicle mileage charge, car or van	160.00	MI	0.00	0.00	0.00	0.58	\$92.80	<input checked="" type="checkbox"/>	<input type="checkbox"/>
33022043	Overnight delivery service, 51 to 70 lb packages	780.00	LB	0.00	0.00	0.00	5.19	\$4,050.25	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	39.00	HR	0.00	119.61	0.00	0.00	\$4,664.87	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$8,807.92		
Total 1st Year Technology Cost								\$96,948.18		
Total Phase Cost								\$96,948.18		

Phase Technology Cost Detail Report (with Markups)

System:

RACER Version: 10.3.0
Database Location: C:\Documents and Settings\poligonem\Application Data\AECOM\RACER 10.3\Washing
Ecology July 2010.mdb

Folder:

Folder Name: NWRO - Sites With Unknown Cost

Project:

Project ID: 01
Project Name: Maralco Site
Project Category: None

Location

State / Country: WASHINGTON
City: SEATTLE

Location Modifier	Default	User
	1.128	1.128

Options

Database: Modified System
Cost Database Date: 2010
Report Option: Fiscal

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project

Phase Technology Cost Detail Report (with Markups)

description.

Phase Technology Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Maralco Site
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: Groundwater

Contaminant

Primary: Metals
Secondary: Fuels

Phase Names

Pre-Study:
Study:
Design:
Removal/Interim Action:
Remedial Action:
Operations & Maintenance:
Long Term Monitoring:
Site Closeout:

Documentation

Description: Reference Draft Cleanup Action Plan dated November 2004 for full project description.
Support Team: Dave South
References: Reference Draft Cleanup Action Plan dated November 2004 for full project description.

Estimator Information

Estimator Name: Mike Poligone
Estimator Title: Senior Project Manager

Phase Technology Cost Detail Report (with Markups)

Agency/Org./Office: SAIC

Business Address: 151 Lafayette Dr
Oak Ridge, TN 37831

Telephone Number: (865) 481-8749

Email Address: michael.d.poligone@saic.com

Estimate Prepared Date: 08/24/2010

Estimator Signature: _____

Date: _____

Reviewer Information

Reviewer Name: David L. South

Reviewer Title: Senior Engineer

Agency/Org./Office: Washington State Department of Ecology

Business Address: Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Telephone Number: 425-649-7200

Email Address: dsou461@ecy.wa.gov

Date Reviewed: 08/31/2010

Reviewer Signature: _____

Date: _____

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Site Closeout
Phase Name: Maralco Site Closeout
Description: Applied 25% contingency and no owner cost were included.

Start Date: July, 2011
Labor Rate Group: System Labor Rate
Analysis Rate Group: System Analysis Rate
Phase Markups: System Defaults

Technology Markups	Markup	% Prime	% Sub.
Site Close-Out Documentation	Yes	100	0
WELL ABANDONMENT	Yes	100	0

Phase Technology Cost Detail Report (with Markups)

Technology: Site Close-Out Documentation

Element: Work Plans & Reports

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220101	Senior Project Manager	1.00	HR	0.00	263.70	0.00	0.00	\$263.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	39.00	HR	0.00	199.38	0.00	0.00	\$7,775.97	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220109	Staff Scientist	3.00	HR	0.00	115.42	0.00	0.00	\$346.26	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	24.00	HR	0.00	102.84	0.00	0.00	\$2,468.09	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	8.00	HR	0.00	112.87	0.00	0.00	\$902.93	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$11,756.95		

Element: Documents

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33220101	Senior Project Manager	4.00	HR	0.00	263.70	0.00	0.00	\$1,054.81	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	13.00	HR	0.00	199.38	0.00	0.00	\$2,591.99	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220104	Senior Staff Engineer	4.00	HR	0.00	263.89	0.00	0.00	\$1,055.54	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220106	Staff Engineer	37.00	HR	0.00	235.21	0.00	0.00	\$8,702.87	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	14.00	HR	0.00	102.84	0.00	0.00	\$1,439.72	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	10.00	HR	0.00	112.87	0.00	0.00	\$1,128.66	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$15,973.59		
Total 1st Year Technology Cost								\$27,730.54		

Phase Technology Cost Detail Report (with Markups)

Technology: WELL ABANDONMENT

Assembly	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Sub Bid Unit Cost	Extended Cost	Cost Override	Markups Applied
33231822	Well Abandonment, 2" Well	10.00	EA	4.31	35.87	38.31	0.00	\$784.89	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$784.89		
Total 1st Year Technology Cost								\$784.89		
Total Phase Cost								\$28,515.43		