

1761 Funding Study
Site Summary for WDOE Site Managers

Site Name: Sternoff Metals SEATTLE Total Project Cost \$4.21 million

WDOE Rep: Dan Cargill Project Duration Approximately 3-4 years

phone: (425) 649-7023

email: daca461@ecy.wa.gov

Site Information:

Site Location: Type (residence, industrial, commercial, remote, etc.) Industrial - Former Scrap yard

What caused contamination and contaminants of concern: Scrap Yard Operations, Transformers

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

Extent of contamination (Area and depth) 9,000 cubic yards (cy). Approx 3 ft depth over entire 1.85 acre site.
Some areas are clean and some are impacted to 10 ft plus.

Investigations conducted to date (PA/SI, RI, FS) RI was performed in 1990. This was not comprehensive.

Documentation Required (RI, FS, CAP, Design) RI/FS/CAP/Design documents needed. Assume low complexity.

Existing GW monitoring wells? If not, how many are needed (approximate)? Depth to GW? There are existing GW wells. GW is approx 10-11 ft. Assume 5 new wells installed to 15 ft.

Soil/sediment type information (if known) _____

Contaminant Concentrations (if known) Available in Feasibility Study

Any tanks? If so, how many and what size? Previously removed or abandon in place? Above or below ground?
No known tanks.

Recommended remedial actions? Excavation and Restoration to Preconstruction Conditions. Assume 50% of
soils disposed at a Subtitle C Facility and 50% to a Subtitle D Facility. Assume monitoring for 1 year, 5 wells, quarterly.

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?
Assume monitoring for 2 years, 5 wells, quarterly.

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: Sternoff Metals
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

The former Sternoff Parcel (No. 0075) is located at 7201 East Marginal Way S. in an industrial area of Seattle (Figure 4). The parcel is bordered to the north by Nelson Trucking, to the east by East Marginal Way S., to the south by Markey Machinery Company, Crowley Parcel F, and S. Garden Street, and to the north by the smaller Frye parcel and 8th Avenue S.

The parcel is currently owned by Ellis Garage, LLC. The parcel was vacant farmland until it was purchased by the Sternoff family in the early 1940s. The parcel was sold to Robert Goodstein in the 1980s. Dennis and Patricia McLeod bought the property from Robert Goodstein in July 1998. Then in June 2004, the parcel was purchased by Noble Homes LLC and sold to Ellis Garage LLC on the same day.

According to tax records, the parcel is 1.85 acres in size and there are no permanent structures on the property. However, previous environmental investigations describe the presence of asbestoscontaining materials in the facility's aluminum smelter office, locker rooms, and office buildings. Additionally in the 1995 aerial photograph, at least two buildings are present on the property (Appendix B).

Depth to groundwater is approximately 10 to 11 feet bgs and groundwater flows both westerly towards the LDW and southerly to Slip 4, and may be tidally influenced (Terra Associates [Terra] 1987, SEACOR 1991)

The parcel is listed on the CSCSL under the name Sternoff Metals. Contamination of soil and groundwater have been confirmed by Ecology and contamination of surface water is suspected. COCs include priority pollutant metals, PCBs, and petroleum products (in groundwater only).

Site Cost Detail Report (with Markups)

groundwater only).
The Ecology Facility/Site ID is 2057.

Site Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Sternoff Metals
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: N/A

Contaminant

Primary: PCBs
Secondary: Fuels

Phase Names

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

Documentation

Description: Estimate primarily based on
Lower Duwamish Waterway RM 2.3-2.8 East Seattle Boiler Works to Slip 4
Summary of Existing Information and Identification of Data Gaps
Prepared for Washington State Department of Ecology Toxics Cleanup Program
Prepared by Science Applications International Corporation
May 2008

Support Team: Dan Cargill

References:

Site Cost Detail Report (with Markups)

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: 08/20/2010

Estimator Signature: _____

Date: _____

Reviewer Information

Reviewer Name: Dan Cargill

Reviewer Title: Toxics Cleanup Program

Agency/Org./Office: WDOE

Business Address:

Telephone Number: 425-649-7023

Email Address: daca461@ecy.wa.gov

Date Reviewed:

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	
Sternoff Metals RI/FS (Ecology - No owner cost, Sternoff Metals Design	\$114,208	\$0	\$0	\$64,215	\$14,272	\$17,840	\$0	\$97,754	\$211,962
									\$70,596
Sternoff Metals RA (Ecology - No owner cost,	\$2,263,383	\$0	\$0	\$557,725	\$218,616	\$683,176	\$0	\$1,514,171	\$3,777,554
Sternoff Metals O&M (Ecology - No owner cost,	\$72,678	\$0	\$0	\$36,833	\$8,746	\$10,933	\$0	\$57,387	\$130,065
Sternoff Metals Site Closeout (Ecology - No owner cost,	\$7,135	\$0	\$0	\$9,138	\$1,302	\$1,627	\$0	\$12,198	\$19,333
Total Site Cost	\$2,457,404	\$0	\$0	\$667,911	\$242,936	\$713,576	\$0	\$1,752,106	\$4,209,510

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: Sternoff Metals
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

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Estimate Documentation Report

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According to tax records, the parcel is 1.85 acres in size and there are no permanent structures on the property. However, previous environmental investigations describe the presence of asbestoscontaining materials in the facility's aluminum smelter office, locker rooms, and office buildings. Additionally in the 1995 aerial photograph, at least two buildings are present on the property (Appendix B).

Depth to groundwater is approximately 10 to 11 feet bgs and groundwater flows both westerly towards the LDW and southerly to Slip 4, and may be tidally influenced (Terra Associates [Terra] 1987, SEACOR 1991)

The parcel is listed on the CSCSL under the name Sternoff Metals. Contamination of soil and groundwater have been confirmed by Ecology and contamination of surface water is suspected. COCs include priority pollutant metals, PCBs, and petroleum products (in groundwater only). The Ecology Facility/Site ID is 2057.

Estimate Documentation Report

Site Documentation:

Site ID: 01
Site Name: Sternoff Metals
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: N/A

Contaminant

Primary: PCBs
Secondary: Fuels

Phase Names

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

Documentation

Description: Estimate primarily based on
Lower Duwamish Waterway RM 2.3-2.8 East Seattle Boiler Works to Slip 4
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Prepared for Washington State Department of Ecology Toxics Cleanup Program
Prepared by Science Applications International Corporation
May 2008

Support Team: Dan Cargill

References:

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: 08/20/2010

Estimator Signature: _____ Date: _____

Estimate Documentation Report

Reviewer Information

Reviewer Name: Dan Cargill
Reviewer Title: Toxics Cleanup Program
Agency/Org./Office: WDOE
Business Address:
Telephone Number: 425-649-7023
Email Address: daca461@ecy.wa.gov
Date Reviewed:

Reviewer Signature: _____ Date: _____

Estimated Costs:

Phase Names	Direct Cost	Marked-up Cost
Sternoff Metals RI/FS	\$114,208	\$211,962
Sternoff Metals Design	\$0	\$70,596
Sternoff Metals RA	\$2,263,383	\$3,777,554
Sternoff Metals O&M	\$72,678	\$130,065
Sternoff Metals Site Closeout	\$7,135	\$19,333
<hr/>		
Total Cost:	\$2,457,404	\$4,209,510

Estimate Documentation Report

Phase Documentation:

Phase Type: Study
Phase Name: Sternoff Metals RI/FS
Description: 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: Ecology - No owner cost, 10% contingency

Technology Markups	Markup	% Prime	% Sub.
Remedial Investigation	Yes	100	0
Feasibility Study	Yes	100	0
Groundwater Monitoring Well	Yes	100	0

Total Marked-up Cost: \$211,962

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)		Yes	n/a
Add Groundwater Monitoring Wells		Yes	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
S&A			
Required Parameters			
Bioassays		No	n/a

Estimate Documentation Report

Technology Name: Remedial Investigation (# 1)

Description	Default	Value	UOM
S&A			
Required Parameters			
Groundwater		Yes	n/a
Surface Soil		Yes	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
Mobile Lab On-site Duration		0	Weeks
Groundwater			
Required Parameters			
Average Sample Depth		10	FT
Samples per Event		5	n/a
Number of Events		4	n/a
Secondary Parameters			
Primary Analytical Template	System Water - PCBs	System Water - PCBs	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
Surface Soil			
Required Parameters			
Samples per Event		30	n/a
Number of Events		1	n/a
Secondary Parameters			
Primary Analytical Template	System Soil - PCBs	System Soil - PCBs	n/a
Secondary Analytical Template	System Soil - Fuels	System Soil - Fuels	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

Estimate Documentation Report

Subsurface Soil

Required Parameters

Average Sample Depth	3	FT
Samples per Event	30	n/a
Number of Events	1	n/a

Secondary Parameters

Primary Analytical Template	System Soil - PCBs	System Soil - PCBs	n/a
Secondary Analytical Template	System Soil - Fuels	System Soil - Fuels	n/a
Turnaround Time	Standard (21 Days)	Standard (21 Days)	n/a
Data Package/QC	Stage 1	Stage 1	n/a
Sampling Method	Power Auger	Power Auger	n/a
Number of Samples/Day	12	12	EA
Contain Purge Water	Yes	Yes	n/a

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

Comments: Assume 5 groundwater wells are sampled quarterly for 1 year.
 Assume 30 each surface samples and subsurface samples at 3 ft.

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		Yes	n/a
Record of Decision / Update Administrative Record		Yes	n/a

Comments:

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		No	n/a
Depth to Groundwater to Aquifer One		10	FT
Number of Wells to Aquifer One		5	EA
Safety Level		D	n/a
Aquifer One			
Required Parameters			
Aquifer One: Average Well Depth		15	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		No	n/a
Aquifer One: Average Number of Soil Samples per Well		0	EA
Aquifer One: Soil Analytical Template		None	n/a
Aquifer One: Safety Level		D	n/a

Comments: Assume 5 wells at 15 ft deep.

Estimate Documentation Report

Phase Documentation:

Phase Type: Design Percent Method
Phase Name: Sternoff Metals Design
Description: Includes design cost using the percentage method.

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
Sternoff Metals RA	July, 2011	Ex Situ Removal - Off-site Treatment or Disposal	\$3,689,243	2.50	\$70,596	2010

Total Design Cost: \$70,596

Estimate Documentation Report

Phase Documentation:

Phase Type: Remedial Action
Phase Name: Sternoff Metals 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.
Demolition, Pavements	Yes	100	0
Excavation	Yes	100	0
Load and Haul	Yes	100	0
Load and Haul	Yes	100	0
Parking Lots	Yes	100	0
Professional Labor Management	Yes	100	0
MONITORING	Yes	100	0

Total Marked-up Cost: \$3,777,554

Technologies:

Estimate Documentation Report

Technology Name: Demolition, Pavements (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Type of Pavement		Bituminous Roads	n/a
Pavement Area		31,000	SF
Pavement Thickness		4	IN
Include Load and Haul Costs		Yes	n/a
Safety Level		D	n/a
Demolition			
Secondary Parameters			
Demolition Factor	1.5	1.5	CY/CY
Demolition Equipment	Power	Power	n/a
Load and Haul			
Secondary Parameters			
Truck Type		Highway	n/a
Volume		574.07	CY
One-way Haul Distance		2	MI
Dump Charge		52	\$/CY

Comments: Assume pavement disposal at Waste Mgt S Alaska St transfer station.

Assume 75% of site @ 1.85 acres is paved. Assume 50% is impacted.

Estimate Documentation Report

Technology Name: Excavation (# 1)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Estimating Method		Volume / Depth	n/a
Volume		9,000	CY
Depth		3	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/Stone	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 - PCBs	System Soil - PCBs	n/a
Secondary Analytical Template	System Soil - Fuels	System Soil - Fuels	n/a
Number of Sampling Points/Locations	136	136	EA
Number of Composites Submitted to Lab	34	34	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 and average of 3 ft of soils are removed over entire site with area of 1.85 acres. Some areas are clean and others are impacted 10 ft plus in depth.

Estimate Documentation Report

Technology Name: Load and Haul (# 2)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Truck Type		Highway	n/a
Volume		5,200	CY
One-way Haul Distance		2	MI
Dump Charge		52	\$/CY
Safety Level		D	n/a

Comments: Assume 50% of total volume (9000 cubic yards (cy)) goes to Subtitle D Waste Management S Alaska St Transfer Station.

Vol = 4,500 cubic yards (cy) x 1.15 swell factor = 5,200 cy.

Technology Name: Load and Haul (# 3)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Truck Type		Highway	n/a
Volume		5,200	CY
One-way Haul Distance		115	MI
Dump Charge		236	\$/CY
Safety Level		D	n/a

Comments: Assume 50% of total volume (9000 cubic yards (cy)) goes to Chemical Waste Management of the Northwest's Subtitle C landfill in Arlington, Oregon.

Vol = 4,500 cubic yards (cy) x 1.15 swell factor = 5,200 cy.

Assume 1.35 tons/cy = 4,500 cy x 1.35 = 6,100 tons.

Assume disposal at Chemical Waste Management of the Northwest's Subtitle C landfill in Arlington, Oregon. Includes disposal of soil through stabilization. Per quote from WM, transportation is \$50/ton and disposal is \$186/ton including taxes and energy charge. Total T&D cost is 6,100 tons x \$236 tons/cy = \$1,440,000.

Load and Haul model would not estimate the combined truck/rail cost, so the truck distance was revised to closely approximated the cost.

Estimate Documentation Report

Technology Name: Parking Lots (# 3)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Type of Surface		Asphalt	n/a
Number of Spaces		68	EA
Pavement Area		31,000	SF
Safety Level		D	n/a
Parking			
Required Parameters			
Lot Area		31,000	SF
Secondary Parameters			
Lot Width	176.07	176.0682	FT
Lot Length	176.07	176.0682	FT
Base Thickness	8	8	IN
Subgrade Thickness	10	10	IN
Asphalt Thickness	1.5	1.5	IN
Parking Stops	No	No	n/a
Curbs	Yes	No	n/a
Inlets/Pipes			
Secondary Parameters			
Size of Inlet	24 IN (61 cm) Diameter	24 IN (61 cm) Diameter	n/a
Number of Inlets	4.08	4.08	EA
Type of Pipe	RCP	RCP	n/a
Size of Pipe 1	30.5 cm (12 IN) RCP	30.5 cm (12 IN) RCP	n/a
Size of Pipe 2	45.7 cm (18 IN) RCP	45.7 cm (18 IN) RCP	n/a
Size of Pipe 3	NONE	NONE	n/a
Length of Pipe 1	197.2	197.2	LF
Length of Pipe 2	74.8	74.8	LF
Length of Pipe 3	0	0	LF
Earthwork			
Secondary Parameters			
Clear and Grub	Light Trees, Heavy Brush	N/A	n/a
Stabilization	None	None	n/a
Soil Type	Normal (Clay)	Normal (Clay)	n/a

Estimate Documentation Report

Comments: Assume 75% of site @ 1.85 acres is paved. Assume 50% is impacted.

Technology Name: Professional Labor Management (# 3)

Description	Default	Value	UOM
System Definition			
Required Parameters			
Markedup Construction Cost (\$)		459,952	\$
Percentage	19.2	19.2	%
Dollar Amount		88,311	\$

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		Yes	n/a
Surface Soil		No	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)		20	MI
Safety Level		D	n/a
Groundwater			
Required Parameters			
Average Sample Depth		10	FT
Samples per Event (First Year)		5	n/a
Samples per Event (Out Years)		0	n/a
Number of Events (First Year)		4	n/a
Number of Events (Out Years)		0	n/a
Number of Years (Out Years)		0	n/a
Secondary Parameters			
Primary Analytical Template	System Water - PCBs	System Water - PCBs	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
QA/QC			
Secondary Parameters			
Split Samples	1: 10	1: 10	EA
Field Duplicate Samples	1: 10	1: 10	EA

Estimate Documentation Report

Technology Name: Monitoring (# 1)

User Name: MONITORING

Description	Default	Value	UOM
QA/QC			
Secondary Parameters			
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:

Estimate Documentation Report

Phase Documentation:

Phase Type: Operations & Maintenance
Phase Name: Sternoff Metals O&M
Description: Assume 2 years GW monitoring at quarterly intervals.
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: Ecology - No owner cost, 10% contingency

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

Total Marked-up Cost: \$130,065

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		No	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)		5	n/a
Samples per Event (Out Years)		5	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 - PCBs	System Water - PCBs	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
QA/QC			
Secondary Parameters			
Split Samples	1: 10	1: 10	EA
Field Duplicate Samples	1: 10	1: 10	EA

Estimate Documentation Report

Technology Name: Monitoring (# 1)

User Name: MONITORING

Description	Default	Value	UOM
QA/QC			
Secondary Parameters			
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:

Estimate Documentation Report

Phase Documentation:

Phase Type: Site Closeout
Phase Name: Sternoff Metals Site Closeout
Description: Assume 5 wells are abandon.
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: Ecology - No owner cost, 10% contingency

Technology Markups	Markup	% Prime	% Sub.
Site Close-Out Documentation	Yes	100	0
CLOSE MONITORING WELLS	Yes	100	0

Total Marked-up Cost: \$19,333

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		Low	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	8	8	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: CLOSE MONITORING WELLS

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

Comments:

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: Sternoff Metals
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 The former Sternoff Parcel (No. 0075) is located at 7201 East Marginal

Phase Technology Cost Detail Report (with Markups)

Way S. in an industrial area of Seattle (Figure 4). The parcel is bordered to the north by Nelson Trucking, to the east by East Marginal Way S., to the south by Markey Machinery Company, Crowley Parcel F, and S. Garden Street, and to the north by the smaller Frye parcel and 8th Avenue S.

The parcel is currently owned by Ellis Garage, LLC. The parcel was vacant farmland until it was purchased by the Sternoff family in the early 1940s. The parcel was sold to Robert Goodstein in the 1980s. Dennis and Patricia McLeod bought the property from Robert Goodstein in July 1998. Then in June 2004, the parcel was purchased by Noble Homes LLC and sold to Ellis Garage LLC on the same day.

According to tax records, the parcel is 1.85 acres in size and there are no permanent structures on the property. However, previous environmental investigations describe the presence of asbestoscontaining materials in the facility's aluminum smelter office, locker rooms, and office buildings. Additionally in the 1995 aerial photograph, at least two buildings are present on the property (Appendix B).

Depth to groundwater is approximately 10 to 11 feet bgs and groundwater flows both westerly towards the LDW and southerly to Slip 4, and may be tidally influenced (Terra Associates [Terra] 1987, SEACOR 1991)

The parcel is listed on the CSCSL under the name Sternoff Metals. Contamination of soil and groundwater have been confirmed by Ecology and contamination of surface water is suspected. COCs include priority pollutant metals, PCBs, and petroleum products (in groundwater only). The Ecology Facility/Site ID is 2057.

Phase Technology Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Sternoff Metals
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: N/A

Contaminant

Primary: PCBs
Secondary: Fuels

Phase Names

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

Documentation

Description: Estimate primarily based on
Lower Duwamish Waterway RM 2.3-2.8 East Seattle Boiler Works to Slip 4
Summary of Existing Information and Identification of Data Gaps
Prepared for Washington State Department of Ecology Toxics Cleanup Program
Prepared by Science Applications International Corporation
May 2008

Support Team: Dan Carggill

References:

Estimator Information

Print Date: 9/2/2010 1:18:03 PM

Page: 3 of 13

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Phase Technology Cost Detail Report (with Markups)

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: 08/20/2010

Estimator Signature: _____ Date: _____

Reviewer Information

Reviewer Name: Dan Cargill
Reviewer Title: Toxics Cleanup Program
Agency/Org./Office: WDOE
Business Address:
Telephone Number: 425-649-7023
Email Address: daca461@ecy.wa.gov
Date Reviewed:

Reviewer Signature: _____ Date: _____

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Study
Phase Name: Sternoff Metals RI/FS
Description: 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: Ecology - No owner cost, 10% contingency

Technology Markups	Markup	% Prime	% Sub.
Remedial Investigation	Yes	100	0
Feasibility Study	Yes	100	0
Groundwater Monitoring Well	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	197.59	0.00	0.00	\$395.18	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	5.00	HR	0.00	175.90	0.00	0.00	\$879.52	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220106	Staff Engineer	5.00	HR	0.00	233.09	0.00	0.00	\$1,165.47	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	10.00	HR	0.00	200.16	0.00	0.00	\$2,001.63	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220109	Staff Scientist	20.00	HR	0.00	114.38	0.00	0.00	\$2,287.57	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	1.00	HR	0.00	198.27	0.00	0.00	\$198.27	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220111	Certified Industrial Hygienist	2.00	HR	0.00	200.39	0.00	0.00	\$400.78	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	6.00	HR	0.00	101.91	0.00	0.00	\$611.46	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	4.00	HR	0.00	111.85	0.00	0.00	\$447.40	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	90.38	0.00	0.00	0.00	\$90.38	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$8,500.85		

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	197.59	0.00	0.00	\$790.35	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220103	Office Manager	2.00	HR	0.00	250.71	0.00	0.00	\$501.42	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	12.00	HR	0.00	175.90	0.00	0.00	\$2,110.85	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220106	Staff Engineer	32.00	HR	0.00	233.09	0.00	0.00	\$7,459.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	12.00	HR	0.00	200.16	0.00	0.00	\$2,401.95	<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	114.38	0.00	0.00	\$11,437.86	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	8.00	HR	0.00	198.27	0.00	0.00	\$1,586.12	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220111	Certified Industrial Hygienist	4.00	HR	0.00	200.39	0.00	0.00	\$801.55	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	20.00	HR	0.00	118.53	0.00	0.00	\$2,370.69	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	32.00	HR	0.00	101.91	0.00	0.00	\$3,261.14	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	8.00	HR	0.00	111.85	0.00	0.00	\$894.79	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	362.24	0.00	0.00	0.00	\$362.24	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$33,977.97		

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	14.38	0.00	0.00	0.00	\$416.99	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	29.00	EA	18.77	0.00	0.00	0.00	\$544.23	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020561	Lysimeter accessories, nylon tubing, 1/4" OD	225.00	LF	0.22	0.00	0.00	0.00	\$49.00	<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	402.02	\$1,608.08	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021694	Total Petroleum Hydrocarbons (SW8015B), Water Analysis	29.00	EA	0.00	0.00	0.00	118.66	\$3,441.22	<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
33022124	Testing, RCRA evaluations, EP toxicity analysis, metals (6010,7470)	1.00	EA	0.00	0.00	0.00	156.59	\$156.59	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022134	Testing, PAH (SW3510/SW8310)	29.00	EA	0.00	0.00	0.00	234.20	\$6,791.89	<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	118.21	\$3,428.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022155	PCBs in Water (Method SW8082)	29.00	EA	0.00	0.00	0.00	88.78	\$2,574.60	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33190403	DOT steel drums, 55 gal., closed only, 17H	5.00	EA	95.06	0.00	0.00	0.00	\$475.30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	5.00	HR	0.00	197.59	0.00	0.00	\$987.94	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	82.00	HR	0.00	118.53	0.00	0.00	\$9,719.83	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33230614	Peristaltic Pump, Weekly Rental	4.00	WK	0.00	0.00	0.00	96.04	\$384.17	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$30,577.83		

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	41.00	EA	14.38	0.00	0.00	0.00	\$589.54	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	41.00	EA	18.77	0.00	0.00	0.00	\$769.43	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020671	En Core Soil Sampler (5 or 25 gram)	41.00	EA	13.40	0.00	0.00	0.00	\$549.43	<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
33021722	Polynuclear Aromatic Hydrocarbons(PAH) (SW 8310),w/prep, Soil Analysis	41.00	EA	0.00	0.00	0.00	234.20	\$9,602.32	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021732	Testing, soil & sediment analysis, total petroleum hydrocarbons (TPH)	41.00	EA	0.00	0.00	0.00	89.06	\$3,651.49	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021776	BTEX/MTBE/TVPH (EPA 8021B/8015B), Soil Analysis	41.00	EA	0.00	0.00	0.00	118.21	\$4,846.49	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021783	PCBs in Soil (Method SW8082)	41.00	EA	0.00	0.00	0.00	88.78	\$3,639.95	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	4.00	HR	0.00	197.59	0.00	0.00	\$790.35	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	66.00	HR	0.00	118.53	0.00	0.00	\$7,823.28	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$32,262.27		

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	41.00	EA	14.38	0.00	0.00	0.00	\$589.54	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	41.00	EA	18.77	0.00	0.00	0.00	\$769.43	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020606	Power Auger Rental	3.00	DAY	0.00	0.00	46.63	0.00	\$139.90	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020671	En Core Soil Sampler (5 or 25 gram)	41.00	EA	13.40	0.00	0.00	0.00	\$549.43	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021722	Polynuclear Aromatic Hydrocarbons(PAH) (SW 8310),w/prep, Soil Analysis	41.00	EA	0.00	0.00	0.00	234.20	\$9,602.32	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Technology Cost Detail Report (with Markups)

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
33021732	Testing, soil & sediment analysis, total petroleum hydrocarbons (TPH)	41.00	EA	0.00	0.00	0.00	89.06	\$3,651.49	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021776	BTEX/MTBE/TVPH (EPA 8021B/8015B), Soil Analysis	41.00	EA	0.00	0.00	0.00	118.21	\$4,846.49	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021783	PCBs in Soil (Method SW8082)	41.00	EA	0.00	0.00	0.00	88.78	\$3,639.95	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33190402	DOT steel drums, 55 gal., open only, 17H	5.00	EA	147.21	0.00	0.00	0.00	\$736.03	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	4.00	HR	0.00	197.59	0.00	0.00	\$790.35	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	63.00	HR	0.00	118.53	0.00	0.00	\$7,467.67	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$32,782.60		
Total 1st Year Technology Cost								\$138,101.52		

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	17.00	HR	0.00	197.59	0.00	0.00	\$3,358.99	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220103	Office Manager	11.00	HR	0.00	250.71	0.00	0.00	\$2,757.82	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220105	Project Engineer	74.00	HR	0.00	175.90	0.00	0.00	\$13,016.93	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220106	Staff Engineer	83.00	HR	0.00	233.09	0.00	0.00	\$19,346.78	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	36.00	HR	0.00	200.16	0.00	0.00	\$7,205.85	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	11.00	HR	0.00	198.27	0.00	0.00	\$2,180.92	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220111	Certified Industrial Hygienist	3.00	HR	0.00	200.39	0.00	0.00	\$601.17	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	44.00	HR	0.00	101.91	0.00	0.00	\$4,484.07	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	9.00	HR	0.00	111.85	0.00	0.00	\$1,006.64	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	581.46	0.00	0.00	0.00	\$581.46	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$54,540.63		
Total 1st Year Technology Cost								\$54,540.63		

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	46.26	\$46.26	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	1.00	DAY	34.74	814.76	0.00	0.00	\$849.50	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	16.00	HR	0.00	118.53	0.00	0.00	\$1,896.55	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33230101	2" PVC, Schedule 40, Well Casing	50.00	LF	1.73	6.79	7.25	0.00	\$788.41	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33230201	2" PVC, Schedule 40, Well Screen	25.00	LF	5.73	6.79	7.25	0.00	\$494.29	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33230301	2" PVC, Well Plug	5.00	EA	18.59	20.37	21.76	0.00	\$303.61	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231101	Hollow Stem Auger, 8" Dia Borehole, Depth <= 100 ft	80.00	LF	0.00	22.93	38.25	0.00	\$4,894.30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231401	2" Screen, Filter Pack	35.00	LF	12.67	5.24	5.60	0.00	\$822.99	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231811	2" Well, Portland Cement Grout	35.00	LF	1.65	0.00	0.00	0.00	\$57.91	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33232101	2" Well, Bentonite Seal	5.00	EA	204.36	135.45	144.66	0.00	\$2,422.35	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$12,576.18		

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	2,037.22	1,192.23	0.00	\$3,229.45	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231178	Move Rig/Equipment Around Site	4.00	EA	127.14	292.85	171.38	0.00	\$2,365.49	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Phase Technology Cost Detail Report (with Markups)

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
33231182	DOT steel drums, 55 gal., open, 17C	4.00	EA	159.46	0.00	0.00	0.00	\$637.82	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33231504	Surface Pad, Concrete, 2' x 2' x 4"	5.00	EA	79.15	22.77	0.27	0.00	\$510.95	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$6,743.70		
Total 1st Year Technology Cost								\$19,319.88		
Total Phase Cost								\$211,962.03		

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: Sternoff Metals
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

The former Sternoff Parcel (No. 0075) is located at 7201 East Marginal

Phase Technology Cost Detail Report (with Markups)

Way S. in an industrial area of Seattle (Figure 4). The parcel is bordered to the north by Nelson Trucking, to the east by East Marginal Way S., to the south by Markey Machinery Company, Crowley Parcel F, and S. Garden Street, and to the north by the smaller Frye parcel and 8th Avenue S.

The parcel is currently owned by Ellis Garage, LLC. The parcel was vacant farmland until it was purchased by the Sternoff family in the early 1940s. The parcel was sold to Robert Goodstein in the 1980s. Dennis and Patricia McLeod bought the property from Robert Goodstein in July 1998. Then in June 2004, the parcel was purchased by Noble Homes LLC and sold to Ellis Garage LLC on the same day.

According to tax records, the parcel is 1.85 acres in size and there are no permanent structures on the property. However, previous environmental investigations describe the presence of asbestoscontaining materials in the facility's aluminum smelter office, locker rooms, and office buildings. Additionally in the 1995 aerial photograph, at least two buildings are present on the property (Appendix B).

Depth to groundwater is approximately 10 to 11 feet bgs and groundwater flows both westerly towards the LDW and southerly to Slip 4, and may be tidally influenced (Terra Associates [Terra] 1987, SEACOR 1991)

The parcel is listed on the CSCSL under the name Sternoff Metals. Contamination of soil and groundwater have been confirmed by Ecology and contamination of surface water is suspected. COCs include priority pollutant metals, PCBs, and petroleum products (in groundwater only). The Ecology Facility/Site ID is 2057.

Phase Technology Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Sternoff Metals
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: N/A

Contaminant

Primary: PCBs
Secondary: Fuels

Phase Names

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

Documentation

Description: Estimate primarily based on
Lower Duwamish Waterway RM 2.3-2.8 East Seattle Boiler Works to Slip 4
Summary of Existing Information and Identification of Data Gaps
Prepared for Washington State Department of Ecology Toxics Cleanup Program
Prepared by Science Applications International Corporation
May 2008

Support Team: Dan Cargill

References:

Estimator Information

Print Date: 9/2/2010 1:19:33 PM

Page: 3 of 8

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Phase Technology Cost Detail Report (with Markups)

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: 08/20/2010

Estimator Signature: _____ Date: _____

Reviewer Information

Reviewer Name: Dan Cargill
Reviewer Title: Toxics Cleanup Program
Agency/Org./Office: WDOE
Business Address:
Telephone Number: 425-649-7023
Email Address: daca461@ecy.wa.gov
Date Reviewed:

Reviewer Signature: _____ Date: _____

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Operations & Maintenance
Phase Name: Sternoff Metals O&M
Description: Assume 2 years GW monitoring at quarterly intervals.
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: Ecology - No owner cost, 10% contingency

Technology Markups
MONITORING

Markup	% Prime	% Sub.
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	33.00	EA	14.38	0.00	0.00	0.00	\$474.51	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020402	Decontamination Materials per Sample	33.00	EA	18.77	0.00	0.00	0.00	\$619.29	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020561	Lysimeter accessories, nylon tubing, 1/4" OD	225.00	LF	0.22	0.00	0.00	0.00	\$49.00	<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	402.02	\$1,608.08	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021694	Total Petroleum Hydrocarbons (SW8015B), Water Analysis	33.00	EA	0.00	0.00	0.00	130.53	\$4,307.45	<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	156.59	\$156.59	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022134	Testing, PAH (SW3510/SW8310)	33.00	EA	0.00	0.00	0.00	257.62	\$8,501.57	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022150	BTEX/MTBE/TVPH (EPA 8021B/8015B), Water Analysis	33.00	EA	0.00	0.00	0.00	130.03	\$4,290.92	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022155	PCBs in Water (Method SW8082)	33.00	EA	0.00	0.00	0.00	97.66	\$3,222.69	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33190403	DOT steel drums, 55 gal., closed only, 17H	5.00	EA	95.06	0.00	0.00	0.00	\$475.30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	6.00	HR	0.00	197.59	0.00	0.00	\$1,185.53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	90.00	HR	0.00	118.53	0.00	0.00	\$10,668.11	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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
33220112	Field Technician	39.00	HR	0.00	118.53	0.00	0.00	\$4,622.85	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Total Element Cost \$7,494.40

Total 1st Year Technology Cost \$79,481.43

Total Phase Cost \$79,481.43

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: Sternoff Metals
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 The former Sternoff Parcel (No. 0075) is located at 7201 East Marginal

Phase Technology Cost Detail Report (with Markups)

Way S. in an industrial area of Seattle (Figure 4). The parcel is bordered to the north by Nelson Trucking, to the east by East Marginal Way S., to the south by Markey Machinery Company, Crowley Parcel F, and S. Garden Street, and to the north by the smaller Frye parcel and 8th Avenue S.

The parcel is currently owned by Ellis Garage, LLC. The parcel was vacant farmland until it was purchased by the Sternoff family in the early 1940s. The parcel was sold to Robert Goodstein in the 1980s. Dennis and Patricia McLeod bought the property from Robert Goodstein in July 1998. Then in June 2004, the parcel was purchased by Noble Homes LLC and sold to Ellis Garage LLC on the same day.

According to tax records, the parcel is 1.85 acres in size and there are no permanent structures on the property. However, previous environmental investigations describe the presence of asbestoscontaining materials in the facility's aluminum smelter office, locker rooms, and office buildings. Additionally in the 1995 aerial photograph, at least two buildings are present on the property (Appendix B).

Depth to groundwater is approximately 10 to 11 feet bgs and groundwater flows both westerly towards the LDW and southerly to Slip 4, and may be tidally influenced (Terra Associates [Terra] 1987, SEACOR 1991)

The parcel is listed on the CSCSL under the name Sternoff Metals. Contamination of soil and groundwater have been confirmed by Ecology and contamination of surface water is suspected. COCs include priority pollutant metals, PCBs, and petroleum products (in groundwater only). The Ecology Facility/Site ID is 2057.

Phase Technology Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Sternoff Metals
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: N/A

Contaminant

Primary: PCBs
Secondary: Fuels

Phase Names

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

Documentation

Description: Estimate primarily based on
Lower Duwamish Waterway RM 2.3-2.8 East Seattle Boiler Works to Slip 4
Summary of Existing Information and Identification of Data Gaps
Prepared for Washington State Department of Ecology Toxics Cleanup Program
Prepared by Science Applications International Corporation
May 2008

Support Team: Dan Carggill

References:

Estimator Information:

Print Date: 9/2/2010 1:20:44 PM

Page: 3 of 7

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Phase Technology Cost Detail Report (with Markups)

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: 08/20/2010

Estimator Signature: _____ Date: _____

Reviewer Information

Reviewer Name: Dan Cargill
Reviewer Title: Toxics Cleanup Program
Agency/Org./Office: WDOE
Business Address:
Telephone Number: 425-649-7023
Email Address: daca461@ecy.wa.gov
Date Reviewed:

Reviewer Signature: _____ Date: _____

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Site Closeout
Phase Name: Sternoff Metals Site Closeout
Description: Assume 5 wells are abandon.
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: Ecology - No owner cost, 10% contingency

Technology Markups

Site Close-Out Documentation
CLOSE MONITORING WELLS

Markup	% Prime	% Sub.
Yes	100	0
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	Cost Markups Applied
33220102	Project Manager	29.00	HR	0.00	197.59	0.00	0.00	\$5,730.04	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220109	Staff Scientist	2.00	HR	0.00	114.38	0.00	0.00	\$228.76	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	19.00	HR	0.00	101.91	0.00	0.00	\$1,936.30	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	6.00	HR	0.00	111.85	0.00	0.00	\$671.09	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$8,566.20		

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	Cost Markups Applied
33220102	Project Manager	9.00	HR	0.00	197.59	0.00	0.00	\$1,778.29	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220104	Senior Staff Engineer	2.00	HR	0.00	261.51	0.00	0.00	\$523.02	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220106	Staff Engineer	26.00	HR	0.00	233.09	0.00	0.00	\$6,060.44	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	11.00	HR	0.00	101.91	0.00	0.00	\$1,121.02	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	8.00	HR	0.00	111.85	0.00	0.00	\$894.79	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$10,377.55		
Total 1st Year Technology Cost								\$18,943.75		

Phase Technology Cost Detail Report (with Markups)

Technology: CLOSE MONITORING WELLS

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	5.00	EA	4.27	35.55	37.96	0.00	\$388.91	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$388.91		
Total 1st Year Technology Cost								\$388.91		
Total Phase Cost								\$19,332.66		

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: Sternoff Metals
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

The former Sternoff Parcel (No. 0075) is located at 7201 East Marginal

Phase Technology Cost Detail Report (with Markups)

Way S. in an industrial area of Seattle (Figure 4). The parcel is bordered to the north by Nelson Trucking, to the east by East Marginal Way S., to the south by Markey Machinery Company, Crowley Parcel F, and S. Garden Street, and to the north by the smaller Frye parcel and 8th Avenue S.

The parcel is currently owned by Ellis Garage, LLC. The parcel was vacant farmland until it was purchased by the Sternoff family in the early 1940s. The parcel was sold to Robert Goodstein in the 1980s. Dennis and Patricia McLeod bought the property from Robert Goodstein in July 1998. Then in June 2004, the parcel was purchased by Noble Homes LLC and sold to Ellis Garage LLC on the same day.

According to tax records, the parcel is 1.85 acres in size and there are no permanent structures on the property. However, previous environmental investigations describe the presence of asbestoscontaining materials in the facility's aluminum smelter office, locker rooms, and office buildings. Additionally in the 1995 aerial photograph, at least two buildings are present on the property (Appendix B).

Depth to groundwater is approximately 10 to 11 feet bgs and groundwater flows both westerly towards the LDW and southerly to Slip 4, and may be tidally influenced (Terra Associates [Terra] 1987, SEACOR 1991)

The parcel is listed on the CSCSL under the name Sternoff Metals. Contamination of soil and groundwater have been confirmed by Ecology and contamination of surface water is suspected. COCs include priority pollutant metals, PCBs, and petroleum products (in groundwater only). The Ecology Facility/Site ID is 2057.

Phase Technology Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Sternoff Metals
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: N/A

Contaminant

Primary: PCBs
Secondary: Fuels

Phase Names

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

Documentation

Description: Estimate primarily based on
Lower Duwamish Waterway RM 2.3-2.8 East Seattle Boiler Works to Slip 4
Summary of Existing Information and Identification of Data Gaps
Prepared for Washington State Department of Ecology Toxics Cleanup Program
Prepared by Science Applications International Corporation
May 2008

Support Team: Dan Cargill

References:

Estimator Information

Print Date: 9/2/2010 1:18:38 PM

Page: 3 of 6

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Phase Technology Cost Detail Report (with Markups)

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: 08/20/2010

Estimator Signature: _____ Date: _____

Reviewer Information

Reviewer Name: Dan Cargill
Reviewer Title: Toxics Cleanup Program
Agency/Org./Office: WDOE
Business Address:
Telephone Number: 425-649-7023
Email Address: daca461@ecy.wa.gov
Date Reviewed:

Reviewer Signature: _____ Date: _____

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Design Percent Method
Phase Name: Sternoff Metals Design
Description: Includes design cost using the percentage method.

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
Sternoff Metals RA	July, 2011	Ex Situ Removal - Off-site Treatment or Disposal	\$3,689,243	2.50	\$70,596	2010

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	70,596.00	0.00	0.00	\$70,596.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$70,596.00		
Total 1st Year Technology Cost								\$70,596.00		
Total Phase Cost								\$70,596.00		

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: Sternoff Metals
Project Category: None

Location

State / Country: WASHINGTON
City: SEATTLE

Location Modifier	Default	User
	.1128	1.128

Options

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

Description

The former Sternoff Parcel (No. 0075) is located at 7201 East Marginal

Phase Technology Cost Detail Report (with Markups)

Way S. in an industrial area of Seattle (Figure 4). The parcel is bordered to the north by Nelson Trucking, to the east by East Marginal Way S., to the south by Markey Machinery Company, Crowley Parcel F, and S. Garden Street, and to the north by the smaller Frye parcel and 8th Avenue S.

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Depth to groundwater is approximately 10 to 11 feet bgs and groundwater flows both westerly towards the LDW and southerly to Slip 4, and may be tidally influenced (Terra Associates [Terra] 1987, SEACOR 1991)

The parcel is listed on the CSCSL under the name Sternoff Metals. Contamination of soil and groundwater have been confirmed by Ecology and contamination of surface water is suspected. COCs include priority pollutant metals, PCBs, and petroleum products (in groundwater only). The Ecology Facility/Site ID is 2057.

Phase Technology Cost Detail Report (with Markups)

Site:

Site ID: 01
Site Name: Sternoff Metals
Site Type: None

Media/Waste Type

Primary: Soil
Secondary: N/A

Contaminant

Primary: PCBs
Secondary: Fuels

Phase Names

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

Documentation

Description: Estimate primarily based on
Lower Duwamish Waterway RM 2.3-2.8 East Seattle Boiler Works to Slip 4
Summary of Existing Information and Identification of Data Gaps
Prepared for Washington State Department of Ecology Toxics Cleanup Program
Prepared by Science Applications International Corporation
May 2008

Support Team: Dan Carggill

References:

Estimator Information

Print Date: 9/2/2010 1:19:07 PM

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Phase Technology Cost Detail Report (with Markups)

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: 08/20/2010

Estimator Signature: _____ Date: _____

Reviewer Information

Reviewer Name: Dan Cargill
Reviewer Title: Toxics Cleanup Program
Agency/Org./Office: WDOE
Business Address:
Telephone Number: 425-649-7023
Email Address: daca461@ecy.wa.gov
Date Reviewed:

Reviewer Signature: _____ Date: _____

Phase Technology Cost Detail Report (with Markups)

Phase:

Phase Type: Remedial Action
Phase Name: Sternoff Metals 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.
Demolition, Pavements	Yes	100	0
Excavation	Yes	100	0
Load and Haul	Yes	100	0
Load and Haul	Yes	100	0
Parking Lots	Yes	100	0
Professional Labor Management	Yes	100	0
MONITORING	Yes	100	0

Phase Technology Cost Detail Report (with Markups)

Technology: Demolition, Pavements

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
17020201	Demolish Bituminous Road with Power Equipment	382.72	CY	0.00	33.88	12.55	0.00	\$17,767.41	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17020401	Dump Charges	574.07	EA	87.75	0.00	0.00	0.00	\$50,374.64	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17030221	916, 1.5 CY, Wheel Loader	11.00	HR	0.00	128.69	46.41	0.00	\$1,926.16	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030285	12 CY, Dump Truck	23.00	HR	0.00	120.09	75.52	0.00	\$4,499.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$74,567.32		
Total 1st Year Technology Cost								\$74,567.32		

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	558.00	HR	0.00	120.09	75.52	0.00	\$109,152.05	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030278	Excavate and load, bank measure, medium material, 3-1/2 C.Y. bucket, hydraulic excavator	9,000.00	BCY	0.00	1.32	1.65	0.00	\$26,763.04	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030418	Backfill with Crushed Stone	1,501.00	CY	56.82	2.13	1.23	0.00	\$90,335.83	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030423	Unclassified Fill, 6" Lifts, Off-Site, Includes Delivery, Spreading, and Compaction	11,700.00	CY	13.78	1.70	1.48	0.02	\$198,680.55	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020303	Organic Vapor Analyzer Rental, per Day	7.00	DAY	0.00	0.00	0.00	52.57	\$368.01	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33020401	Disposable Materials per Sample	136.00	EA	16.34	0.00	0.00	0.00	\$2,222.23	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021722	Polynuclear Aromatic Hydrocarbons(PAH) (SW 8310),w/prep, Soil Analysis	34.00	EA	0.00	0.00	0.00	292.75	\$9,953.63	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021732	Testing, soil & sediment analysis, total petroleum hydrocarbons (TPH)	34.00	EA	0.00	0.00	0.00	111.33	\$3,785.08	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021776	BTEX/MTBE/TVPH (EPA 8021B/8015B), Soil Analysis	34.00	EA	0.00	0.00	0.00	147.76	\$5,023.80	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021783	PCBs in Soil (Method SW8082)	34.00	EA	0.00	0.00	0.00	110.97	\$3,773.12	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	8.00	HR	0.00	224.53	0.00	0.00	\$1,796.25	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220108	Project Scientist	25.00	HR	0.00	227.46	0.00	0.00	\$5,686.43	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220110	QA/QC Officer	4.00	HR	0.00	225.30	0.00	0.00	\$901.21	<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	4.00	HR	0.00	134.70	0.00	0.00	\$538.79	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	4.00	HR	0.00	115.81	0.00	0.00	\$463.23	<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"/>
Total Element Cost								\$459,951.65		
Total 1st Year Technology Cost								\$459,951.65		

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	Cost Markups Applied
17020401	Dump Charges	5,200.00	EA	87.75	0.00	0.00	0.00	\$456,300.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17030224	966, 4.0 CY, Wheel Loader	29.00	HR	0.00	128.69	129.78	0.00	\$7,495.85	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030288	26 CY, Semi Dump	87.00	HR	0.00	120.09	111.34	0.00	\$20,134.71	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$483,930.56		
Total 1st Year Technology Cost								\$483,930.56		

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	5,200.00	EA	398.25	0.00	0.00	0.00	\$2,070,900.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17030224	966, 4.0 CY, Wheel Loader	27.00	HR	0.00	128.69	129.78	0.00	\$6,978.90	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030288	26 CY, Semi Dump	1,500.00	HR	0.00	120.09	111.34	0.00	\$347,150.16	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Element Cost								\$2,425,029.05		
Total 1st Year Technology Cost								\$2,425,029.05		

Phase Technology Cost Detail Report (with Markups)

Technology: Parking Lots

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
17030102	Rough Grading, 12G, 1 Pass	3,788.89	SY	0.00	0.37	0.26	0.00	\$2,411.51	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030107	Fine Grading, 120G, 2 Passes	3,788.89	SY	0.00	0.66	0.25	0.00	\$3,469.64	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030203	Roadway Soil Excavation, with Scraper, Load & Haul Spoil	769.14	CY	0.00	6.12	5.69	0.00	\$9,087.64	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030257	Cat 215, 1.0 CY, Soil, Shallow, Trenching, Excludes Sheeting, Excludes Dewatering	99.27	BCY	0.00	1.29	0.56	0.00	\$182.81	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030501	Compaction, subgrade, 18" wide, 8" lifts, walk behind, vibrating plate	961.42	ECY	0.00	4.05	0.28	0.00	\$4,158.86	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030510	Dry Roll Gravel, Steel Roller	3,461.11	SY	0.00	1.37	0.52	0.00	\$6,545.46	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17030515	Backfill and compact, by hand, 6" layers, air rammer/tamper	51.95	ECY	0.00	18.73	1.91	0.00	\$1,071.95	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18010102	Gravel, Delivered & Dumped	769.14	CY	39.97	7.10	7.48	0.00	\$41,961.98	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18010310	Prime Coat	3,461.11	SY	0.99	0.06	0.02	0.00	\$3,706.70	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18010312	Asphalt Wearing Course, 1 Pass (Line Item Includes 5% Waste)	282.30	TON	109.93	12.08	3.46	0.00	\$35,419.56	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18020205	24" Diameter, 5' Deep Area Drain with Grate	5.00	EA	1,936.09	3,325.11	62.64	0.00	\$26,619.18	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18020401	Lines on pavement, parking stall, paint, white, 4" wide	68.00	EA	5.88	9.92	2.13	0.00	\$1,219.11	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19030174	12" Reinforced Concrete Pipe, Class 4, with Gaskets	197.20	LF	34.05	38.40	2.40	0.00	\$14,760.75	<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
19030176	18" Reinforced Concrete Pipe, Class 4, with Gaskets	74.80	LF	29.08	33.57	2.09	0.00	\$4,842.46	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Total Element Cost	\$155,457.62
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	Total 1st Year Technology Cost	\$155,457.62
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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	88,311.00	0.00	0.00	\$88,311.00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Total Element Cost								\$88,311.00		
Total 1st Year Technology Cost								\$88,311.00		

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	Cost 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"/>
33020561	Lysimeter accessories, nylon tubing, 1/4" OD	225.00	LF	0.25	0.00	0.00	0.00	\$55.68	<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	456.84	\$1,827.36	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33021694	Total Petroleum Hydrocarbons (SW8015B), Water Analysis	33.00	EA	0.00	0.00	0.00	148.33	\$4,894.84	<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	177.94	\$177.94	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022134	Testing, PAH (SW3510/SW8310)	33.00	EA	0.00	0.00	0.00	292.75	\$9,660.87	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022150	BTEX/MTBE/TVPH (EPA 8021B/8015B), Water Analysis	33.00	EA	0.00	0.00	0.00	147.76	\$4,876.04	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33022155	PCBs in Water (Method SW8082)	33.00	EA	0.00	0.00	0.00	110.97	\$3,662.14	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33190403	DOT steel drums, 55 gal., closed only, 17H	5.00	EA	108.02	0.00	0.00	0.00	\$540.12	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220102	Project Manager	6.00	HR	0.00	224.53	0.00	0.00	\$1,347.19	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	90.00	HR	0.00	134.70	0.00	0.00	\$12,122.85	<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
33230614	Peristaltic Pump, Weekly Rental	4.00	WK	0.00	0.00	0.00	109.14	\$436.56	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Total Element Cost

\$40,844.54

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	10.00	HR	0.00	224.53	0.00	0.00	\$2,245.31	<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	64.00	HR	0.00	227.46	0.00	0.00	\$14,557.27	<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	18.00	HR	0.00	225.30	0.00	0.00	\$4,055.43	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220112	Field Technician	2.00	HR	0.00	134.70	0.00	0.00	\$269.40	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220114	Word Processing/Clerical	14.00	HR	0.00	115.81	0.00	0.00	\$1,621.31	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33220115	Draftsman/CADD	10.00	HR	0.00	127.10	0.00	0.00	\$1,271.01	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33240101	Other Direct Costs	1.00	LS	544.38	0.00	0.00	0.00	\$544.38	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Total Element Cost

\$40,958.90

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	540.00	LB	0.00	0.00	0.00	5.85	\$3,157.68	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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
33220112	Field Technician	39.00	HR	0.00	134.70	0.00	0.00	\$5,253.23	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Total Element Cost \$8,503.71

Total 1st Year Technology Cost \$90,307.15

Total Phase Cost \$3,777,554.35