Associated Earth Sciences, Inc.

Celebrating 25 Years of Service

Technical Memorandum

Date: December 17, 2009

To: Pacific Topsoils, Inc.
805 80th Street SW
Everett, Washington 98203
Attn: Mr. Januz Bajsarowicz

Project Name: Mill E Site

From: Jon N. Sondergaard, P.G., P.E.G.

Project No: KV050654A

Subject: Mill E 2009 Ground Water Monitoring Summary

GROUND WATER MONITORING

Associated Earth Sciences, Inc. (AESI) performed ground water monitoring at the Mill E site initially on September 29, 2009 consistent with the Mill E's Performance and Compliance Monitoring Plan (PCMP) dated October 1998. AESI returned to the site on October 21, 2009 to resample well PZ-3A because the laboratory had analyzed the previously collected sample for pentachlorophenol after its prescribed holding time and the analyses had to be redone. We returned again on December 4, 2009 to obtain water levels from well PZ-1A following alterations to the well head to prevent surface water from flowing into the well monument and submerging the well head. During the September 2009 monitoring event, depth to water measurements were made in the 4 of the site's 6 piezometers (PZ-2A, PZ-2B, PZ-3A, and PZ-3B). Water level measurements were not collected from wells PZ-1A and PZ-1B at that time because the PZ-1A monument was filled with water and the well head was submerged. AESI returned to the site on December 4, 2009 to collect water level measurements from wells PZ-1A and PZ-1B following alterations to the well monument to prevent surface water from entering the well. The depth to water measurements are summarized in Table 1. A site plan showing the approximate well locations is presented on Figure 1.

Table 1
Depth to Ground Water[1]

Piezometer	Date	Reference Elevation (feet) Top of PVC[2]	Depth to Water (feet)[1]	Ground Water Elevation (feet)[3]
PZ-1A	12/4/09	9.90	6.35	3.55
PZ-1B	12/4/09	7.93	2.34	5.59
PZ-2A	9/29/09	9.40	6.05	3.35
	10/21/09	9.40	5.94	3.46
PZ-2B	9/29/09	8.38	4.91	3.47
	10/21/09	8.38	4.70	3.68
PZ-3A	9/29/09	10.31	8.13	2.18
	10/21/09	10.31	7.87	2.44
PZ-3B	9/29/09	7.54	dry	---
	10/21/09	7.54	5.05	2.49

[1] Measurements collected at outgoing tide
[2] Top of casing elevations referenced to mean sea level (Shaw, 2003)
[3] "A" wells are located inside the containment; "B" wells are located outside the containment

Ground water samples were collected from piezometer PZ-3A only. Piezometer PZ-3A was purged and sampled using a disposable bailer, consistent with the facility's PCMP. Field measurements (depth to water, pH, conductivity, and temperature) were recorded at the time of sampling. The field measurements are summarized in Table 2. After purging and recording of field measurements, ground water samples were obtained for off-site analytical testing. The ground water samples were collected in laboratory-prepared bottles. The samples were placed in a cooler packed with ice and delivered under chain-of-custody (COC) procedures to Test America Analytical Testing Corporation in Tacoma, Washington. The COC form outlining the requested analyses is attached.

Table 2
Field Monitoring Parameters
September 2007

Sample Location	Sample Date	Depth to Water (ft-BTOC)	Gallons Removed	pH (S.U.)	Specific Conductance (µS/cm)	Temperature (°C)
PZ-3A	9/16/08	7.83	2	6.34	716	16.90
	10/21/09	7.87	2	7.2	1105	16.51

ft-BTOC = feet below top of PVC casing
S.U. = standard pH units
µS/cm = microSiemens per centimeter
°C = degrees Celsius

ASPHALT CAP AND SOIL COVER

An asphalt cap and soil cover inspection was performed on October 27, 2009 by a professional engineer from AESI. A copy of the field report from that visit is attached. The majority of the cap was visible. The southern interior portion of the cap was covered with wood chips and shipping containers and the asphalt was not visible in these areas. Where observed, the asphalt cap exhibited little evidence of deterioration and no signs of excessive settlement. Three locations were observed where minor gouging of the asphalt had occurred (Photos 1 and 2). We recommended that these areas be patched with asphalt.

The areas to the south of the cap are covered with grass and some scattered brush. Some small gouges in the soil cover were observed (Photo 3) and portions of the soil cover were void of grass (Photo 4). We recommend that the gouges in the soil cover be filled and that the bare areas be hydroseeded with grass.

QUALITY ASSURANCE/QUALITY CONTROL

Laboratory quality assurance/quality control (QA/QC) analyses were performed in conjunction with the September 2009 ground water quality monitoring event. Routine laboratory QA procedures included analyzing surrogate spikes, matrix spikes, matrix duplicates, laboratory control samples, and method blanks. The sample collected on September 29, 2009 and analyzed for pentachlorophenol was tested past the holding time for that analyte. All other QA/QC results were judged to be acceptable for their intended use. Well PZ-3A was re-sampled on October 21, 2009 and reanalyzed for pentachlorophenol on October 30, 2009. The test results are presented in Table 3 below and the Test America Analytical Testing Corporation laboratory certificates are attached to this letter.

WATER BALANCE

Elevations for the top of the well casings and historic ground water elevations were obtained by reviewing the "2003 Annual Ground Water Compliance Monitoring and Five Year Data Review Report" prepared by Shaw Environmental, Inc. (Shaw) and obtained from the Washington State Department of Ecology (Ecology). Ground water elevations for the year 2005 could not be found. All "A" series wells (PZ-1A, PZ-2A, and PZ-3A) are located inside of the barrier wall and all "B" series wells (PZ-1B, PZ-2B, and PZ-3B) are located outside of the barrier wall. Figure 2 shows a comparison of historical ground water elevation data obtained for the site. Review of the data indicates that generally after 2001, ground water elevations outside of the barrier wall are higher than inside the barrier, with the exception of the 2007 measurement for well PZ-1A. The higher than expected water level in PZ-1A in 2007 was investigated, and was determined to be a result of surface water collecting in the monument. This problem has been corrected by raising the elevation of the top of the monument to prevent surface water from seeping into the monument (Photo 5).

The data for wells PZ-1A/1B, PZ-2A/2B and PZ-3A/3B suggests the barrier wall is generally performing as intended and isolating ground water inside the barrier from that outside the barrier.

RESULTS AND CONCLUSIONS

The September 2009 ground water analytical results for the Mill E site were compared to the Washington Model Toxics Control Act (MTCA) cleanup standards and are presented in Table 3. Concentrations of all analytical parameters detected in the PZ-3A ground water sample were below the established MTCA cleanup standards, except for arsenic. The September 2009 PZ-3A result of 820 micrograms per liter (µg/L) for arsenic is above the MTCA cleanup standard of 5 µg/L. Review of historic ground water quality data for the site indicates the 2009 results are within the range of past measurements. The concentrations of diesel and motor oil in the sample increased compared to the 2008 results. This is likely the result of surface water seepage into well PZ-1A, which has been corrected.

Table 3
Comparison of Ground Water Analytical Results
and MTCA Cleanup Standard for Ground Water
September 2007

Sample Location	Sample Date	TPH-D (µg/L)	TPH-G (µg/L)	TPH-M (µg/L)	PCP (µg/L)	Arsenic (µg/L)
PZ-3A	9/16/08	5200	2000	1800	---	**820**
	10/21/09	---	---	---	0.17	
MTCA[1]		*10,000*	*10,000*	*10,000*	*7.29*	*5*

TPH-D = total petroleum hydrocarbons-diesel
TPH-G = total petroleum hydrocarbons-gasoline
TPH-M = total petroleum hydrocarbons-motor oil
PCP = pentachlorophenol
µg/L = micrograms per liter
Bold denotes an exceedance of the MTCA cleanup standard for ground water.
(1) MTCA = Model Toxics Control Act cleanup standards for ground water (WAC 173-340-720).

The following minor repairs are recommended: 1) patch small ruts in asphalt cover; 2) back fill small gouges in soil cover and; 3) hydroseed areas of bare soil cover. As of our visit on December 4, 2009 the gouges in the soil cover had been repaired. We understand that Pacific Topsoils will patch the gouges in the asphalt and apply hydroseed to the soil cover as soon as temperatures become warm enough so that these repairs will remain intact. The repairs are expected to be implemented sometime during the Spring of 2010. In our opinion, delay of the repairs until that time will not impact the effectiveness of the asphalt cap or the soil cover.

We trust that this information meets your current needs. Please do not hesitate to contact us if you have any questions or require additional information.

Attachments:
Figure 1: Site Plan
Figure 2: Historic Ground Water Elevations
Figure 3: Analyte Concentrations in Well PZ-3A
Photos 1 through 5
Field Report of Cap Inspection
Laboratory Test Certificates and Chain of Custody.

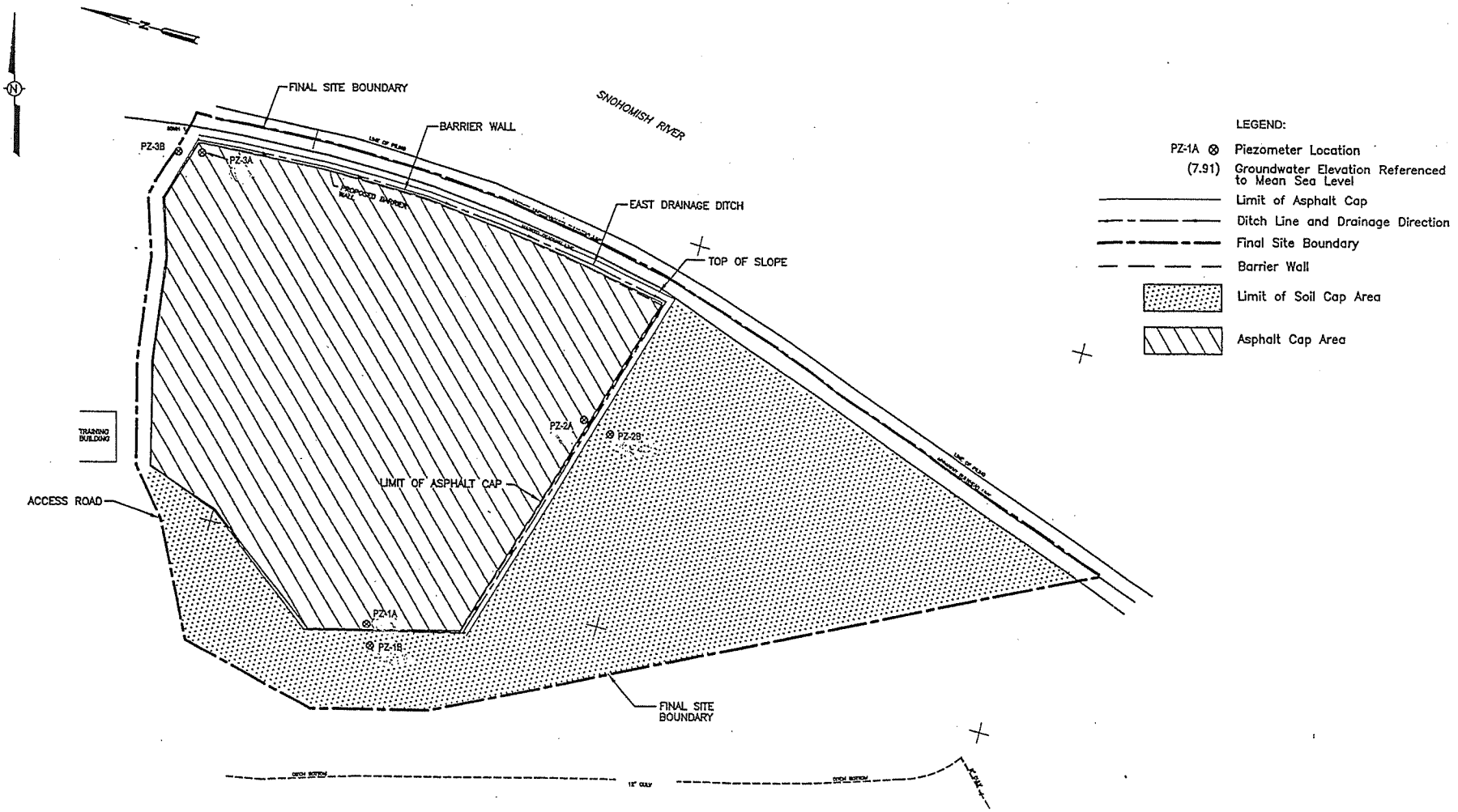
Photo 1: Small rut in pavement

Photo 2: Small rut in pavement

Photo 3: Rut in soil cover

Photo 4: Soil cover area needing hydroseed

Photo 5: Alteration of well PZ-1A well head to prevent inflow of surface water.



BASE MAP TOPOGRAPHY BASED ON AERIAL PHOTOGRAMMETRIC MAPPING BY RICHARD B. DAVIS CO., WITH CONTROL SURVEY BY CLARK M. LEEMAN SURVEYING, IN DECEMBER, 1997. **(SHAW, 2003)**

Associated Earth Sciences, Inc.

projects\

FORMER MILL E/KOPPERS SITE PLAN

FIGURE **1**

DATE **9/2007**

PROJ. NO. **KE050654A**

Figure 2 Mill E Ground Water Elevations

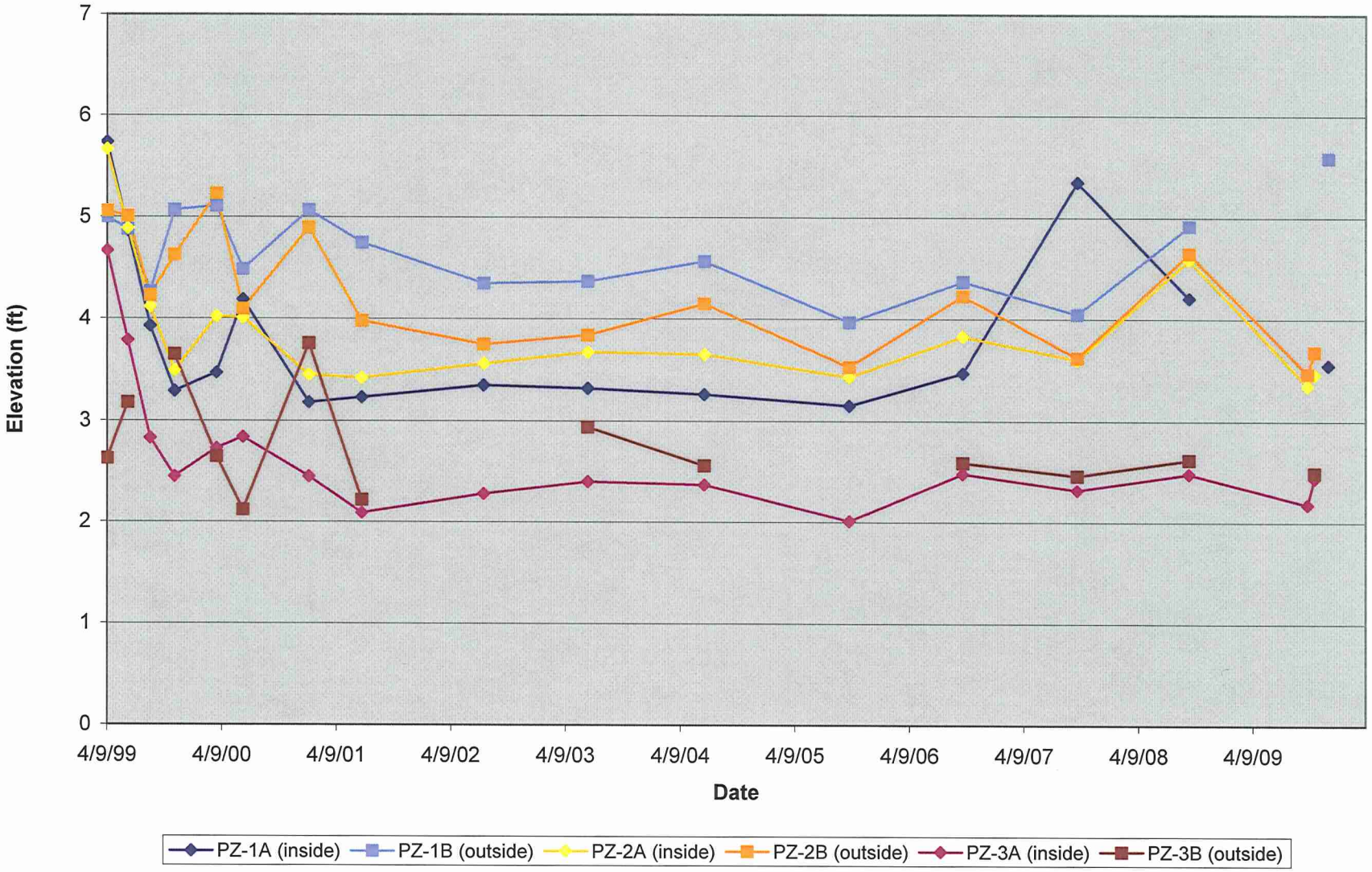


FIGURE 3 MILL E SITE
ANALYTE CONCENTRATIONS WELL PZ-3A

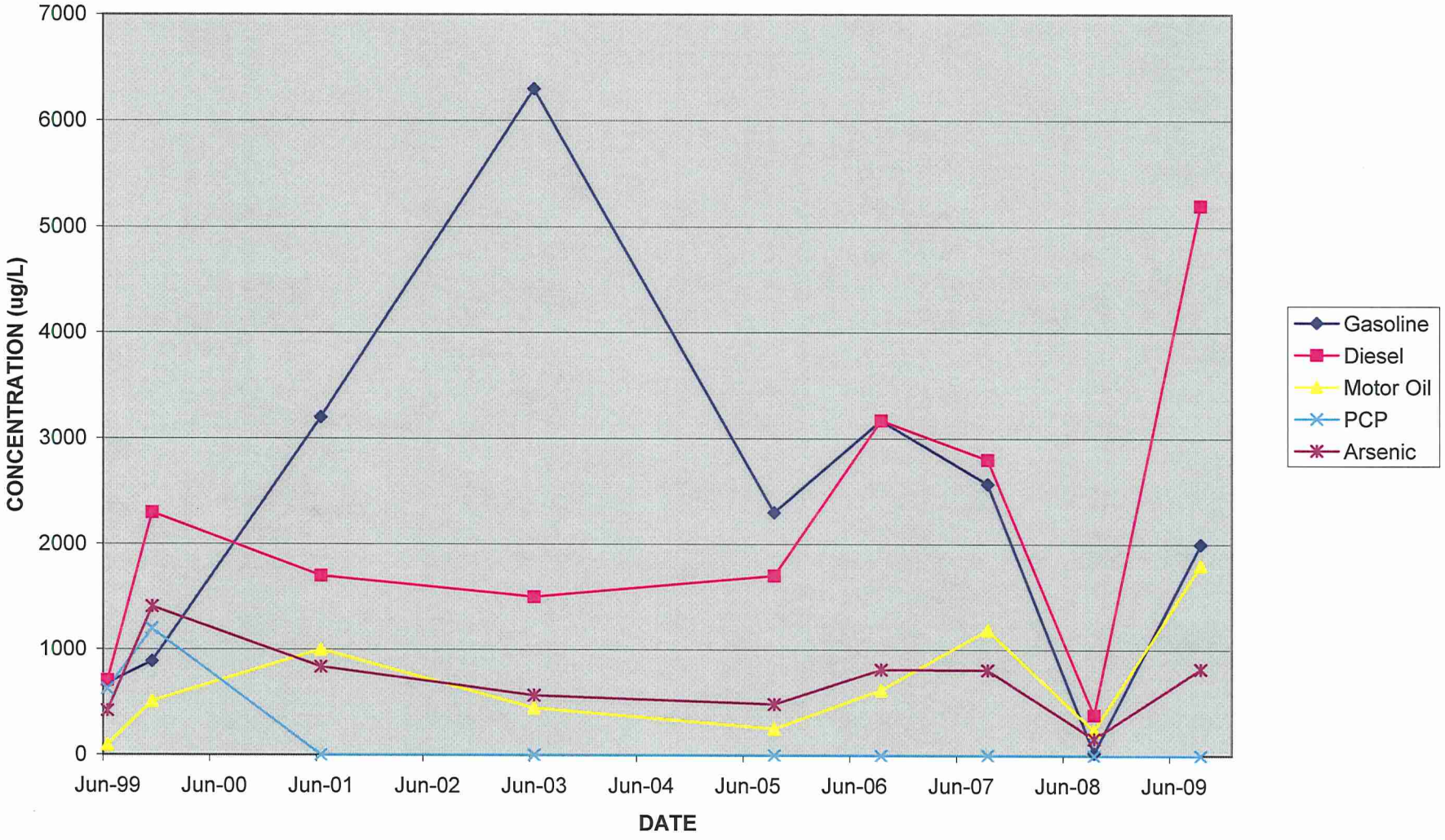


Photo 1: Small rut in pavement

Photo 2: Small rut in pavement

Photo 3: Rut in soil cover

Photo 4: Soil cover area needing hydroseed

Photo 5: Alteration of well PZ-1A well head to prevent inflow of surface water.

FIELD REPORT

Associated Earth Sciences, Inc.

Celebrating 25 Years of Service

911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
425-827-7701 FAX 827-5424

Date	Project Name	Project No.
10/27/09	**Mill E Site Monitoring**	**KV050654A**
Location		Weather
Everett, WA		**Overcast, 50° F**
Municipality / Permit Number		Report Number
Engineer / Architect		
Client / Owner		
Pacific Topsoils		
General Contractor / Superintendent		
Grading Contractor / Superintendent		

TO: Pacific Topsoils, Inc.
805 80th Street SW
Everett, Washington 98203
ATTN: Januz Bajsarowicz
AS REQUESTED BY

THE FOLLOWING WAS NOTED:

We visited the site to perform an annual inspection of the landfill cover areas. The two areas inspected were the asphalt cover on the north side of the site, and the vegetative cover on the south side of the site.

Asphalt Cover Area

The asphalt cover was in generally good condition and comparable to conditions observed during our last inspection on July 17, 2008. However, we did notice three small areas where the asphalt appeared to have been indented or thinned. These three areas were irregular in shape but a patch would measure approximately 1' x 1', 2' x 1', or 6' x 2'. We indicated the approximate location of these areas on the attached site plan, and marked the areas with white paint in the field. Although the asphalt cover has not yet been compromised, we recommend patching these areas to prevent breaching of the asphalt cover.

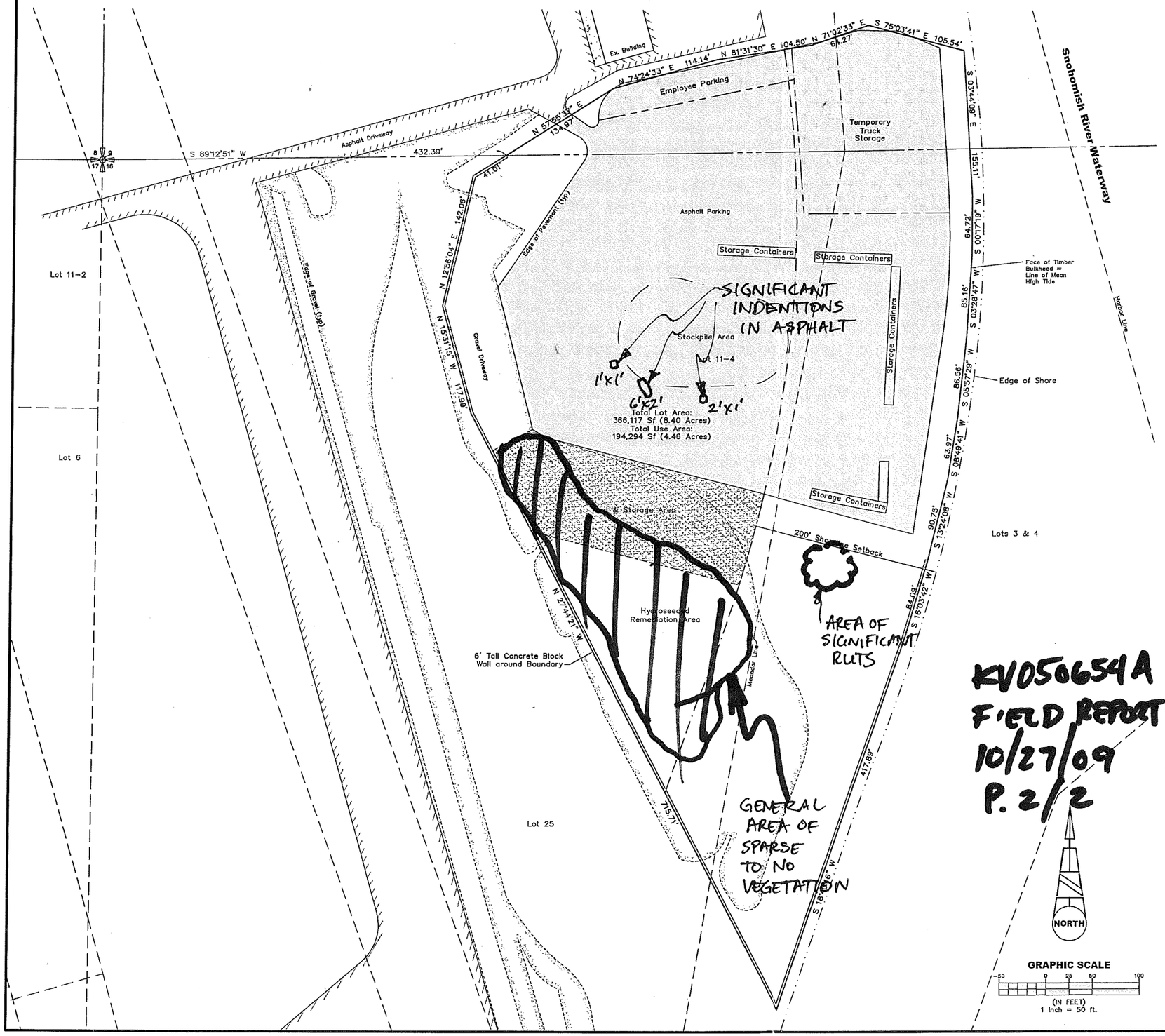
Vegetative Cover Area

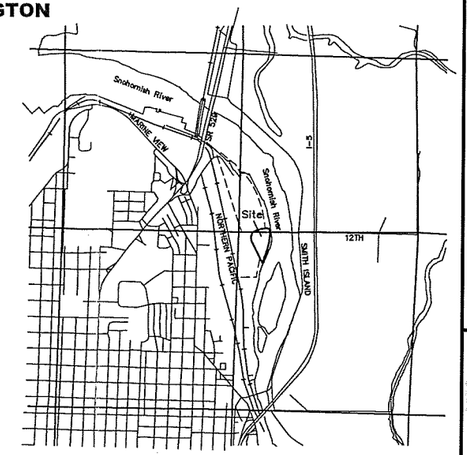
In general, the eastern two-thirds of the vegetative cover area appeared to have sufficient grass, clover, and other low vegetative growth. The western third of the vegetative cover area was observed to have sparse to no vegetation, as indicated on the attach plan. The soil in this area appears to be very sandy and lacks sufficient organic content to sustain vegetation for extended periods. We recommend placing approximately 2 inches of topsoil over the bare soil areas and hydroseeding the area to re-establish the vegetative cover. Several areas of ruts near 1-foot deep were also observed. We recommend that these ruts be filled in and hydroseeded.

COPIES TO:		FIELD REP.:	Eric Lim, PE
DATE MAILED:		PRINCIPAL / PM:	Jon Sondergaard, P.E.G.

A PORTION OF SECTIONS 9 & 16, TOWNSHIP 29 NORTH, RANGE 5 EAST, W.M., SNOHOMISH COUNTY, WASHINGTON

Pacific Topsoil's Riverside Site Plan





VICINITY MAP

SCALE 1" = 2000'

LEGAL DESCRIPTION

LOT 11-4:
ALL THAT PORTION OF GOVERNMENT LOT 9, IN SECTION 9, TOWNSHIP 29 NORTH, RANGE 5 EAST OF THE WILLAMETTE MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID GOVERNMENT LOT 9; THENCE NORTH 89°12'51" EAST, ALONG THE SOUTH LINE OF SAID SECTION 9, A DISTANCE OF 432.39 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 57°55'37" EAST A DISTANCE OF 134.97 FEET; THENCE NORTH 74°24'33" EAST A DISTANCE OF 114.14 FEET; THENCE NORTH 81°31'30" EAST A DISTANCE OF 64.27 FEET; THENCE SOUTH 75°03'41" EAST A DISTANCE OF 105.54 FEET TO A POINT ON THE LINE OF MEAN HIGH TIDE OF THE LEFT BANK OF THE SNOHOMISH RIVER, WHICH POINT IS ON THE FACE OF A TIMBER BULKHEAD; THENCE SOUTH 03°44'09" EAST, ALONG SAID LINE OF MEAN HIGH TIDE AND SAID TIMBER BULKHEAD A DISTANCE OF 104.83 FEET TO A POINT ON THE SOUTH LINE OF SAID SECTION 9; THENCE SOUTH 89°12'51" WEST, ALONG SAID SOUTH LINE OF SECTION 9, A DISTANCE OF 497.30 FEET TO THE TRUE POINT OF BEGINNING; TOGETHER WITH THAT PORTION OF GOVERNMENT LOT 2 OF SECTION 16 IN TOWNSHIP 29 NORTH, RANGE 5 EAST OF THE WILLAMETTE MERIDIAN, BEING A PORTION OF LOTS A, B, C AND D OF THE PLAT OF SUBDIVISION OF LOT 2, SEC. 16, T29N, R5E, W.M., ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 5 OF PLATS, PAGE 16, RECORDS OF SNOHOMISH COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID GOVERNMENT LOT 2; THENCE NORTH 89°12'51" EAST, ALONG THE NORTH LINE OF SAID SECTION 16, A DISTANCE OF 432.39 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 57°55'37" WEST A DISTANCE OF 41.01 FEET; THENCE SOUTH 12°56'04" WEST A DISTANCE OF 142.05 FEET; THENCE SOUTH 15°31'15" EAST A DISTANCE OF 117.99 FEET; THENCE SOUTH 27°44'21" EAST A DISTANCE OF 715.71 FEET TO A POINT ON THE LINE OF MEAN HIGH TIDE OF THE LEFT BANK OF THE SNOHOMISH RIVER, WHICH POINT IS ON THE FACE OF A TIMBER BULKHEAD; THENCE IN A NORTHERLY DIRECTION, ALONG SAID MEAN LINE OF HIGH TIDE AND SAID TIMBER BULKHEAD ON THE FOLLOWING COURSES: NORTH 18°40'16" 417.89 FEET, NORTH 16°03'42" EAST 84.09 FEET, NORTH 13°24'08" EAST 90.75 FEET, NORTH 08°49'41" EAST 63.97 FEET, NORTH 05°57'29" EAST 86.56 FEET, NORTH 03°28'47" EAST 85.16 FEET, NORTH 00°17'19" EAST 64.72 FEET, NORTH 03°44'09" WEST 50.29 FEET TO A POINT ON THE NORTH LINE OF SAID SECTION SECTION; THENCE SOUTH 89°12'51" WEST, ALONG SAID NORTH LINE OF SECTION 16, A DISTANCE OF 497.30 FEET TO THE TRUE POINT OF BEGINNING. CONTAINING 8.40 ACRES, MORE OR LESS.

TAX ACCOUNT NUMBERS

290516-002-005-00

APPLICANT/OWNER

Pacific Topsoils, Inc.
805 80th St Southwest
Everett, WA 98203
(425) 337-2700
Janusz Bajsarowicz

ENGINEER

GFK Consulting, Inc.
1726 HOLBROOK AVE
EVERETT, WA 98203
(425) 347-2898

SITE CONDITIONS

	EXISTING	DEVELOPED
SOILS	Urban Landfill	Same
FOLIAGE	Meadow Grasses	Same
TERRAIN	Flat	Flat

REVISIONS

GFK Consulting, Inc.
1726 Holbrook Avenue,
Everett, WA 98203
(425) 347-2898

Pacific Topsoil's
Riverside Site Plan
Preliminary Site Plan w/ Picture
CITY OF EVERETT WASHINGTON

DRAWN:	HMM
DESIGNED:	HMM
APPROVED:	GK
DATE:	2/3/09
PROJECT NO.	08-183
SCALE:	1" = 50'
SHEET	1 OF 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 580-15801-1

Job Description: Mill E

For:
Associated Earth Sciences
911 5th Avenue
Suite 100
Kirkland, WA 98033

Attention: Jon Sondergaard

Approved for release.
Curtis Armstrong
Project Manager I
10/29/2009 10:19 AM

Curtis Armstrong
Project Manager I
curtis.armstrong@testamericainc.com
10/29/2009
Revision: 1

cc: Lara Koger

TestAmerica Tacoma is a part of TestAmerica Laboratories, Inc.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

Table of Contents

Job Narrative
580-J15801-1

Comments
No additional comments.

Receipt
A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain-of-Custody (COC). Logged in with no analysis.

All other samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA
Method 8270C:
The following sample was prepared outside of preparation holding time due to a laboratory oversight: 15801- 1.

No other analytical or quality issues were noted.

GC Semi VOA
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

METHOD SUMMARY

Client: Associated Earth Sciences

Job Number: 580-15801-1

Description	Lab Location	Method	Preparation Method
Matrix Water			
Semivolatile Organic Compounds (GC/MS SIM)	TAL TAC	SW846 8270C	
Liquid-Liquid Extraction (Continuous)	TAL TAC		SW846 3520C
Northwest - Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-Gx	
Purge and Trap	TAL TAC		SW846 5030B
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-Dx	
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC		SW846 3510C
Metals (ICP/MS)	TAL TAC	SW846 6020	
Preparation, Total Recoverable or Dissolved Metals	TAL TAC		SW846 3005A

Lab References:

TAL TAC = TestAmerica Tacoma

Method References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Associated Earth Sciences

Job Number: 580-15801-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-15801-1	PZ-3A	Water	09/29/2009 1113	09/30/2009 1010

Client: Associated Earth Sciences

Job Number: 580-15801-1

Client Sample ID: **PZ-3A**

Lab Sample ID: 580-15801-1
Client Matrix: Water

Date Sampled: 09/29/2009 1113
Date Received: 09/30/2009 1010

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-51830		Instrument ID:	SEA016
Preparation:	3520C	Prep Batch: 580-51777		Lab File ID:	SE001550.D
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	10/12/2009 1330			Final Weight/Volume:	10 mL
Date Prepared:	10/10/2009 1230			Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	RL
Pentachlorophenol	0.86	H	0.094

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol	83		50 - 120

Client: Associated Earth Sciences

Job Number: 580-15801-1

Client Sample ID: **PZ-3A**

Lab Sample ID: 580-15801-1
Client Matrix: Water

Date Sampled: 09/29/2009 1113
Date Received: 09/30/2009 1010

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Method:	NWTPH-Gx	Analysis Batch: 580-51566	Instrument ID: SEA006
Preparation:	5030B		Initial Weight/Volume: 5 mL
Dilution:	1.0		Final Weight/Volume: 5 mL
Date Analyzed:	10/07/2009 1046		Injection Volume:
Date Prepared:	10/07/2009 1046		Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Gasoline	2000		50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene (Surr)	105		50 - 150
Trifluorotoluene (Surr)	99		50 - 150

Client: Associated Earth Sciences

Job Number: 580-15801-1

Client Sample ID: **PZ-3A**

Lab Sample ID: 580-15801-1
Client Matrix: Water

Date Sampled: 09/29/2009 1113
Date Received: 09/30/2009 1010

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-51784		Instrument ID:	TAC019
Preparation:	3510C	Prep Batch: 580-51778		Lab File ID:	GR00685.D
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	10/11/2009 1558			Final Weight/Volume:	5 mL
Date Prepared:	10/10/2009 1236			Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	RL
#2 Diesel (C10-C24)	5200		120
Motor Oil (>C24-C36)	1800		240

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	140		50 - 150

Client: Associated Earth Sciences

Job Number: 580-15801-1

Client Sample ID: **PZ-3A**

Lab Sample ID: 580-15801-1
Client Matrix: Water

Date Sampled: 09/29/2009 1113
Date Received: 09/30/2009 1010

6020 Metals (ICP/MS)-Total Recoverable

Method:	6020	Analysis Batch: 580-51806		Instrument ID:	SEA026
Preparation:	3005A	Prep Batch: 580-51711		Lab File ID:	N/A
Dilution:	5.0			Initial Weight/Volume:	30 mL
Date Analyzed:	10/09/2009 1635			Final Weight/Volume:	30 mL
Date Prepared:	10/09/2009 1017				

Analyte	Result (ug/L)	Qualifier	RL
Arsenic	820		2.0

DATA REPORTING QUALIFIERS

Client: Associated Earth Sciences

Job Number: 580-15801-1

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	H	Sample was prepped or analyzed beyond the specified holding time

Client: Associated Earth Sciences

Job Number: 580-15801-1

Method Blank - Batch: 580-51777

Method: 8270C
Preparation: 3520C

Lab Sample ID:	MB 580-51777/1-A	Analysis Batch:	580-51830	Instrument ID:	SEA016
Client Matrix:	Water	Prep Batch:	580-51777	Lab File ID:	SE001548.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	1000 mL
Date Analyzed:	10/12/2009 1250			Final Weight/Volume:	10 mL
Date Prepared:	10/10/2009 1230			Injection Volume:	1 uL

Analyte	Result	Qual	RL
Pentachlorophenol	ND		0.10

Surrogate	% Rec	Acceptance Limits
2,4,6-Tribromophenol	64	50 - 120

Lab Control Sample - Batch: 580-51777

Method: 8270C
Preparation: 3520C

Lab Sample ID:	LCS 580-51777/2-A	Analysis Batch:	580-51830	Instrument ID:	SEA016
Client Matrix:	Water	Prep Batch:	580-51777	Lab File ID:	SE001549.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	1000 mL
Date Analyzed:	10/12/2009 1310			Final Weight/Volume:	10 mL
Date Prepared:	10/10/2009 1230			Injection Volume:	1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Pentachlorophenol	9.99	9.83	98	60 - 140	

Surrogate	% Rec	Acceptance Limits
2,4,6-Tribromophenol	105	50 - 120

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Associated Earth Sciences

Job Number: 580-15801-1

Method Blank - Batch: 580-51566

Method: NWTPH-Gx
Preparation: 5030B

Lab Sample ID: MB 580-51566/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/07/2009 0658
Date Prepared: 10/07/2009 0658

Analysis Batch: 580-51566
Prep Batch: N/A
Units: ug/L

Instrument ID: SEA006
Lab File ID: J0609032.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	RL
Gasoline	ND		50

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene (Surr)	96	50 - 150
Trifluorotoluene (Surr)	103	50 - 150

Lab Control Sample - Batch: 580-51566

Method: NWTPH-Gx
Preparation: 5030B

Lab Sample ID: LCS 580-51566/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/07/2009 0726
Date Prepared: 10/07/2009 0726

Analysis Batch: 580-51566
Prep Batch: N/A
Units: ug/L

Instrument ID: SEA006
Lab File ID: J0609033.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Gasoline	1000	932	93	79 - 110	

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene (Surr)	105	50 - 150
Trifluorotoluene (Surr)	95	50 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Associated Earth Sciences

Job Number: 580-15801-1

Method Blank - Batch: 580-51778

Method: NWTPH-Dx
Preparation: 3510C

Lab Sample ID: MB 580-51778/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/11/2009 1411
Date Prepared: 10/10/2009 1236

Analysis Batch: 580-51784
Prep Batch: 580-51778
Units: ug/L

Instrument ID: TAC019
Lab File ID: GR00677.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
#2 Diesel (C10-C24)	ND		120
Motor Oil (>C24-C36)	ND		250

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	115	50 - 150

Lab Control Sample - Batch: 580-51778

Method: NWTPH-Dx
Preparation: 3510C

Lab Sample ID: LCS 580-51778/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/11/2009 1437
Date Prepared: 10/10/2009 1236

Analysis Batch: 580-51784
Prep Batch: 580-51778
Units: ug/L

Instrument ID: TAC019
Lab File ID: GR00679.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
#2 Diesel (C10-C24)	5000	4890	98	70 - 140	
Motor Oil (>C24-C36)	5000	5360	107	66 - 125	

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	113	50 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Associated Earth Sciences

Job Number: 580-15801-1

Method Blank - Batch: 580-51711

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID: MB 580-51711/21-A
Client Matrix: Water
Dilution: 5.0
Date Analyzed: 10/09/2009 1453
Date Prepared: 10/09/2009 1017

Analysis Batch: 580-51806
Prep Batch: 580-51711
Units: ug/L

Instrument ID: SEA026
Lab File ID: N/A
Initial Weight/Volume: 30 mL
Final Weight/Volume: 30 mL

Analyte	Result	Qual	RL
Arsenic	ND		2.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 580-51711

Method: 6020
Preparation: 3005A
Total Recoverable

LCS Lab Sample ID: LCS 580-51711/22-A
Client Matrix: Water
Dilution: 50
Date Analyzed: 10/09/2009 1517
Date Prepared: 10/09/2009 1017

Analysis Batch: 580-51806
Prep Batch: 580-51711
Units: ug/L

Instrument ID: SEA026
Lab File ID: N/A
Initial Weight/Volume: 30 mL
Final Weight/Volume: 30 mL

LCSD Lab Sample ID: LCSD 580-51711/23-A
Client Matrix: Water
Dilution: 50
Date Analyzed: 10/09/2009 1521
Date Prepared: 10/09/2009 1017

Analysis Batch: 580-51806
Prep Batch: 580-51711
Units: ug/L

Instrument ID: SEA026
Lab File ID: N/A
Initial Weight/Volume: 30 mL
Final Weight/Volume: 30 mL

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Arsenic	110	110	80 - 120	0	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: 15801

CLIENT: Associated Earth Sciences, Inc

REPORT TO: Jon Sondergaard cc: Lara Koger
ADDRESS: jsondergaard@aesgeo.com lkoger@aesgeo.com

PHONE: 425-827-7701 FAX: 425-827-5424

PROJECT NAME: Mill E

PROJECT NUMBER: KV050654A

SAMPLED BY: RBK

INVOICE TO: AESI
911 - 5th Ave
Kirkland, WA 98033

P.O. NUMBER:

TURNAROUND REQUEST
in Business Days *

Organic & Inorganic Analyses: [10] STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: [5] STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* *Turnaround Requests less than standard may incur Rush Charges.*

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TPH-G	TPH-D	TPH-M	PCP	total arsenic	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	PZ-3A	9/29/09 1113	X	X	X	X	X	W	6		1
2	TB-10/3 Trip Blank							W	1		2
3											
4											
5											
6											
7											
8											
9											
10											

RELEASED BY: Lara Koger
PRINT NAME: Lara Koger FIRM: AESI DATE: 9/29/09 TIME: 1548

RECEIVED BY:
PRINT NAME: FIRM: DATE: 9/29/09 TIME:

RELEASED BY:
PRINT NAME: FIRM: DATE: TIME:

RECEIVED BY: Tom Blankinship
PRINT NAME: FIRM: TA-Tac DATE: 9/30/09 TIME: 10:10

ADDITIONAL REMARKS:

TB= TEMP: 0.2 PAGE OF

TAL-1000(0408)

Sm Blue/white wet bubble lab Cour w/cs

Login Sample Receipt Check List

Client: Associated Earth Sciences

Job Number: 580-15801-1

Login Number: 15801
Creator: Blankinship, Tom
List Number: 1

List Source: TestAmerica Tacoma

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 580-16190-1

Job Description: Mill E

For:
Associated Earth Sciences
911 5th Avenue
Suite 100
Kirkland, WA 98033

Attention: Jon Sondergaard

Approved for release.
Curtis Armstrong
Project Manager I
11/9/2009 4:53 PM

Curtis Armstrong
Project Manager I
curtis.armstrong@testamericainc.com
11/09/2009

cc: Lara Koger

TestAmerica Tacoma is a part of TestAmerica Laboratories, Inc.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

Table of Contents

METHOD SUMMARY

Client: Associated Earth Sciences | Job Number: 580-16190-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Semivolatile Organic Compounds (GC/MS SIM)	TAL TAC	SW846 8270C	
Liquid-Liquid Extraction (Continuous)	TAL TAC		SW846 3520C

Lab References:

TAL TAC = TestAmerica Tacoma

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Associated Earth Sciences

Job Number: 580-16190-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-16190-1	PZ-3A	Water	10/21/2009 1410	10/22/2009 1425

Client: Associated Earth Sciences

Job Number: 580-16190-1

Client Sample ID: **PZ-3A**

Lab Sample ID: 580-16190-1
Client Matrix: Water

Date Sampled: 10/21/2009 1410
Date Received: 10/22/2009 1425

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-53070		Instrument ID:	TAC023
Preparation:	3520C	Prep Batch: 580-52861		Lab File ID:	HP16972.D
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	10/30/2009 1052			Final Weight/Volume:	10 mL
Date Prepared:	10/27/2009 1601			Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	RL
Pentachlorophenol	0.17		0.094

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol	66		50 - 120

Client: Associated Earth Sciences

Job Number: 580-16190-1

Surrogate Recovery Report

8270C Semivolatile Organic Compounds (GC/MS SIM)

Client Matrix: Water

Lab Sample ID	Client Sample ID	TBP %Rec
580-16190-1	PZ-3A	66
MB 580-52861/1-A		76
LCS 580-52861/2-A		100

Surrogate	Acceptance Limits
TBP = 2,4,6-Tribromophenol	50-120

Client: Associated Earth Sciences

Job Number: 580-16190-1

Method Blank - Batch: 580-52861

Method: 8270C
Preparation: 3520C

Lab Sample ID: MB 580-52861/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/30/2009 1013
Date Prepared: 10/27/2009 1601

Analysis Batch: 580-53070
Prep Batch: 580-52861
Units: ug/L

Instrument ID: TAC023
Lab File ID: HP16970.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 10 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
Pentachlorophenol	ND		0.10

Surrogate	% Rec	Acceptance Limits
2,4,6-Tribromophenol	76	50 - 120

Lab Control Sample - Batch: 580-52861

Method: 8270C
Preparation: 3520C

Lab Sample ID: LCS 580-52861/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/30/2009 1033
Date Prepared: 10/27/2009 1601

Analysis Batch: 580-53070
Prep Batch: 580-52861
Units: ug/L

Instrument ID: TAC023
Lab File ID: HP16971.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 10 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Pentachlorophenol	9.82	10.9	111	60 - 140	

Surrogate	% Rec	Acceptance Limits
2,4,6-Tribromophenol	100	50 - 120

Calculations are performed before rounding to avoid round-off errors in calculated results.

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
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16190

TAL-4124 (1007)

Client: Associated Earth Sciences, Inc	Project Manager: Jon Sondergaard	Date: 9/21/09	Chain of Custody Number: 144894
Address: 911 - 5th Ave	Telephone Number (Area Code)/Fax Number: 425-827-7701/425-827-3424	Lab Number:	Page 1 of 1
City: Kirkland / State: WA / Zip Code: 98033	Site Contact: Lara Kroger	Lab Contact: Curtis Armstrong	
Project Name and Location (State): ~~Smith Island Landfill, Everett, WA~~ Mill E	Carrier/Waybill Number: CA 10/26/09		
Contract/Purchase Order/Quote No.: KE056286C			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	PCPs	Special Instructions/ Conditions of Receipt
PZ-3A	10/21/09	1410		X			2						X	1

@ Lab Temp 2.0 TB 1.4
Cooler Dsc Med and fish. Wet Packs
Packing Bubble bag
w/ice - client to dispose

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Lara Kroger	10/22/09	14:25	1. Received By: Cathy Gamble	10/22/09	14:25
2. Relinquished By:	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Check List

Client: Associated Earth Sciences

Job Number: 580-16190-1

Login Number: 16190
Creator: Gamble, Cathy
List Number: 1

List Source: TestAmerica Tacoma

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	False	
Sample Preservation Verified	N/A	