FARALLON consulting

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June 23, 2008

Mr. Thomas Evans, Project Manager
Corporation of the Presiding Bishop of the Church of Jesus Christ of Latter-day Saints
PO Box 2328
Issaquah, Washington 98027

RE: SOIL MIXING PILOT-SCALE TEST RESULTS
MORNINGSIDE FARM PROJECT
VASHON ISLAND, WASHINGTON
FARALLON PN: 478-001

Dear Mr. Evans:

Farallon Consulting, L.L.C. (Farallon) has prepared this report to present the results of a pilot-scale soil mixing test for the Corporation of the Presiding Bishop of the Church of Jesus Christ of Latter-day Saints (LDS Church) at the Morningside Farm property located between 131st Avenue Southwest and 125th Place Southwest on Vashon Island, Washington (herein referred to as the Site). The purpose of the pilot-scale test was to assess if soil mixing is an applicable remedial technology to eliminate the risk to human health and the environment from arsenic in shallow soil at the Site

The results of the pilot-scale test indicate that soil mixing alone may not meet the regulatory requirements to protect human health and the environment. Soil mixing may require augmentation by placement of a 2- to 3-inch layer of top soil and hydroseeding after the soil mixing, or by removal of the top 4 to 5 inches of sod/soil with the highest concentrations of arsenic prior to soil mixing to achieve the desired cleanup goals. Farallon recommends that these alternatives be discussed with the Washington State Department of Ecology (Ecology) prior to preparation of the cleanup action plan.

BACKGROUND

Previous subsurface investigations conducted at the Site by others included collection of 246 shallow soil samples from depths of 0 to 6 inches below ground surface (bgs) for analysis for arsenic and lead. Concentrations of arsenic were detected in soil above the Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A cleanup level of 20 milligrams per kilogram (mg/kg) for arsenic in 189 of 246 soil samples, and above the Ecology Interim Action Trigger Level (IATL) of 200 mg/kg for arsenic in 6 of 246 soil samples. Concentrations of lead were detected above the MTCA Method A cleanup level of 250 mg/kg for lead in 8 of 246 soil samples, and below the IATL concentration of 1,000 mg/kg for lead in all of the soil samples.

Ecology indicated to Farallon in October 2007 that soil mixing would be an acceptable cleanup technology for the Site if it could be demonstrated that concentrations of arsenic and, to a lesser extent, lead detected in shallow soil across the Site would decrease to below the IATLs and MTCA Method A cleanup levels. Farallon reviewed available case studies that implemented this remedial technology that indicated the effectiveness is highly variable and dependent on location-specific conditions. Farallon recommended that a pilot-scale test be conducted to determine whether this remedial technology is applicable to the Site conditions.

Previous subsurface investigations did not collect soil samples below a depth of approximately 0.5 foot bgs. Therefore, Farallon recommended that additional soil samples be collected for laboratory analysis to assess the vertical distribution of arsenic. If the concentrations of arsenic decreased with depth and were below a concentration of 40 mg/kg at depths between 0.5 and 2 feet bgs, a pilot-scale test would be warranted to assess the feasibility of this remedial technology.

The results of the subsurface investigation indicated that concentrations of arsenic at a depth greater than 1 foot bgs are below the MTCA Method A cleanup level of 20 mg/kg, as reported in the *Soil Mixing Cleanup Technology Evaluation, Shallow Soil Investigation, Morningside Farm Property, Vashon Island, Washington* dated March 10, 2008, prepared by Farallon. Therefore, a pilot-scale test was warranted to assess whether soil mixing will meet the regulatory requirements.

SCOPE OF WORK

Farallon conducted the pilot-scale test on May 27, 2008, which included the completion of multiple pilot test areas incorporating two mixing methods at varying depths. The test areas were located in General Area 1 (Figure 1), which has the fewest number of trees and was the most likely area for soil mixing to be effective. Specific locations of the pilot test areas were based on the results of previous subsurface investigations conducted by Farallon and others and on information provided by the LDS Church. Farallon used a differential Global Positioning System (GPS) to estimate the approximate locations of the previous soil sampling stations to target potential areas for the soil mixing.

The soil was mixed using a Roadtec SX7 Soil Reclaimer (the reclaimer). The reclaimer has a maximum mixing depth of 24 inches bgs. Farallon estimates that the pilot test swaths were approximately 100 by 20 feet and 100 by 10 feet in area. All equipment was provided and operated by Wilder Construction Company of Everett, Washington.

Two soil mixing methods were tested to assess the effectiveness of soil mixing in reducing arsenic concentrations in surface soil at the Site. The first method incorporated existing grass and vegetation into the soil mix to depths of 12 and then 18 inches bgs. The second method used the reclaimer to mulch the upper 2 to 3 inches of grass and root mass, and then used a bulldozer to scrape that layer of material off the test area before beginning deep mixing.

The limits of each mixing swath and all soil sampling locations were recorded using the GPS unit. Soil quality was screened using an x-ray fluorescence field instrument (XRF) that provided quantitative estimates of the concentrations of arsenic present. The XRF results were used to determine which samples would be submitted for laboratory analysis. Soil screening and sampling locations were selected by establishing five 20-foot grid lengths along each test area and then randomly selecting a minimum of one location per subsection for screening purposes and soil sample collection. All non-dedicated sampling tools were decontaminated between sampling locations.

The test areas completed are as follows:

- **Test Area 1** – Soil was mixed to a depth of 12 inches bgs, with grass and topsoil included;
- **Test Area 2** – Soil was mixed to a depth of 18 inches bgs, with grass and topsoil included;
- **Test Area 3** – Soil was mixed to a depth of 12 inches bgs, with grass and topsoil removed;
- **Test Area 4** – Soil was mixed to a depth of 18 inches bgs, with grass and topsoil removed;
- **Test Area 5** – Soil was mixed to a depth of 18 inches bgs, with grass and topsoil removed; This test was conducted to confirm the results of the Test Area 4 method, which indicated the most positive results based on the XRF screening evaluation.

A total of 23 soil samples collected after the soil mixing was completed were submitted to the laboratory for analysis of arsenic by U.S. Environmental Protection Agency Method 6010B. Soil samples were placed into laboratory-prepared sample containers, placed on ice in a cooler, and transported to OnSite Environmental Inc. of Redmond, Washington under standard chain-of-custody protocols.

RESULTS

The XRF data, laboratory analytical results, and GPS data are summarized in Table 1. The laboratory analytical results are included in Attachment A. The estimated area of General Area No. 1 is depicted on Figure 1.

The analytical results of soil samples collected prior to the soil mixing detected concentrations of arsenic in the upper 6 inches bgs in General Area No. 1 where the field-scale pilot test was performed ranged from below the laboratory practical quantitation limit (PQL) to 100 mg/kg. The soil sample results for the area proximate to the field-scale pilot test location are presented in Table 1.

The pilot-scale test resulted in a reduction in arsenic concentrations that typically ranged from below the PQL to 100 mg/kg in the shallow soil. Farallon used average concentrations for the XRF and for laboratory analytical data as a method of evaluating the results. The averages were

calculated using the actual PQL value rather than applying alternative methods accepted by Ecology, such as using one-half of the PQL, to provide a more conservative estimate of whether soil mixing is technically feasible. The target concentration for arsenic is the MTCA Method A cleanup level of 20 mg/kg. A discussion of the specific results for each test area follows.

The soil in Test Area 1 was mixed to a depth of 12 inches bgs, with grass and topsoil included. The XRF and confirmatory analytical results detected concentrations of arsenic that ranged from below the PQL to 65 mg/kg, with an average concentration of 29.6 mg/kg based on XRF and an average concentration of 28.3 mg/kg based on laboratory results, exceeding the 20 mg/kg target cleanup level.

The soil in Test Area 2 was mixed to a depth of 18 inches bgs, with grass and topsoil included. The XRF and confirmatory analytical results detected concentrations of arsenic that ranged from below the PQL to 56 mg/kg, with an average concentration of 25.1 mg/kg based on XRF and an average concentration of 23.0 mg/kg based on laboratory results, exceeding the 20 mg/kg target cleanup level.

The soil in Test Area 3 was mixed to a depth of 12 inches bgs, with grass and topsoil removed. The XRF and confirmatory analytical results detected concentrations of arsenic that ranged from below the PQL to 61 mg/kg, with an average concentration of 33.4 mg/kg based on XRF and an average of 22.6 mg/kg based on laboratory results, exceeding the 20 mg/kg target cleanup level.

The soil in Test Area 4 was mixed to a depth of 18 inches bgs, with grass and topsoil removed. The XRF and confirmatory analytical results detected concentrations of arsenic that ranged from below the PQL to 42 mg/kg, with an average of 25.5 mg/kg based on XRF and an average of 23.0 mg/kg based on laboratory results, exceeding the 20 mg/kg target cleanup level.

The soil in Test Area 5 was mixed to a depth of 18 inches bgs, with grass and topsoil removed and represented a duplicate of Test Area 4. The XRF and confirmatory analytical results detected concentrations of arsenic that ranged from below the PQL to 50 mg/kg, with an average of 22.0 mg/kg based on XRF and an average of 17.6 mg/kg based on laboratory results. The laboratory analytical data were below the target cleanup level of 20 mg/kg.

CONCLUSIONS

The results of the field-scale pilot testing indicate that although soil mixing has the potential to achieve the target MTCA Method A cleanup level of 20 mg/kg, this remedial technology cannot be relied upon as a stand-alone method to achieve the cleanup goals due to the highly variable and unpredictable results. Analysis of the average concentrations of arsenic in surface soil samples collected following the soil mixing indicates that soil mixing lowered the concentrations of arsenic to slightly above the MTCA Method A cleanup level, which does not meet the cleanup goals. Supplementing the soil mixing with additional engineering control measures will likely be necessary to use this cleanup technology at the Site.

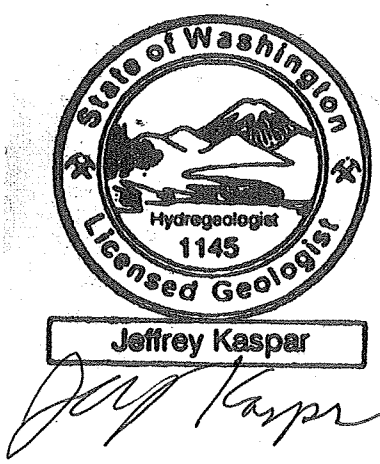
Combining soil mixing and placement of a clean topsoil layer prior to reestablishing vegetation would provide an effective cap to mitigate direct human contact with soil containing concentrations of arsenic above the MTCA Method A cleanup level that could remain following soil mixing. Alternatively, removal of the topsoil and root mass, which contain the highest concentrations of arsenic, to a depth of 3 to 5 inches bgs prior to soil mixing could result in soil mixing achieving the cleanup goals without placement of a clean capping material. The contaminated materials removed would be placed in an existing containment cell that will be constructed at the Site for placement of contaminated soil that will be excavated from areas of the Site where soil mixing is not technically feasible. The clean soil excavated from depths greater than 18 inches bgs for the containment cell could be used as a source of soil for a capping material that could be supplemented with topsoil prior to hydroseeding.

Farallon recommends soliciting an opinion from Ecology regarding the application of soil mixing prior to incorporating this technology into the cleanup action planning documents. Farallon anticipates that either of the additional engineering control measures above will meet Ecology requirements, provided that the end result is sufficiently protective of human health and the environment through mitigation of direct contact with the soil containing concentrations of arsenic above the MTCA Method A cleanup levels.

Farallon appreciates the opportunity to provide LDS Church with environmental consulting services. Please call either of the undersigned at (425) 295-0800 if you have any questions or comments regarding this letter report.

Sincerely,

Farallon Consulting, L.L.C.



Jeffrey Kaspar, L.G., L.H.G.
Senior Project Manager

Peter Jewett, L.G., L.E.G.
Principal

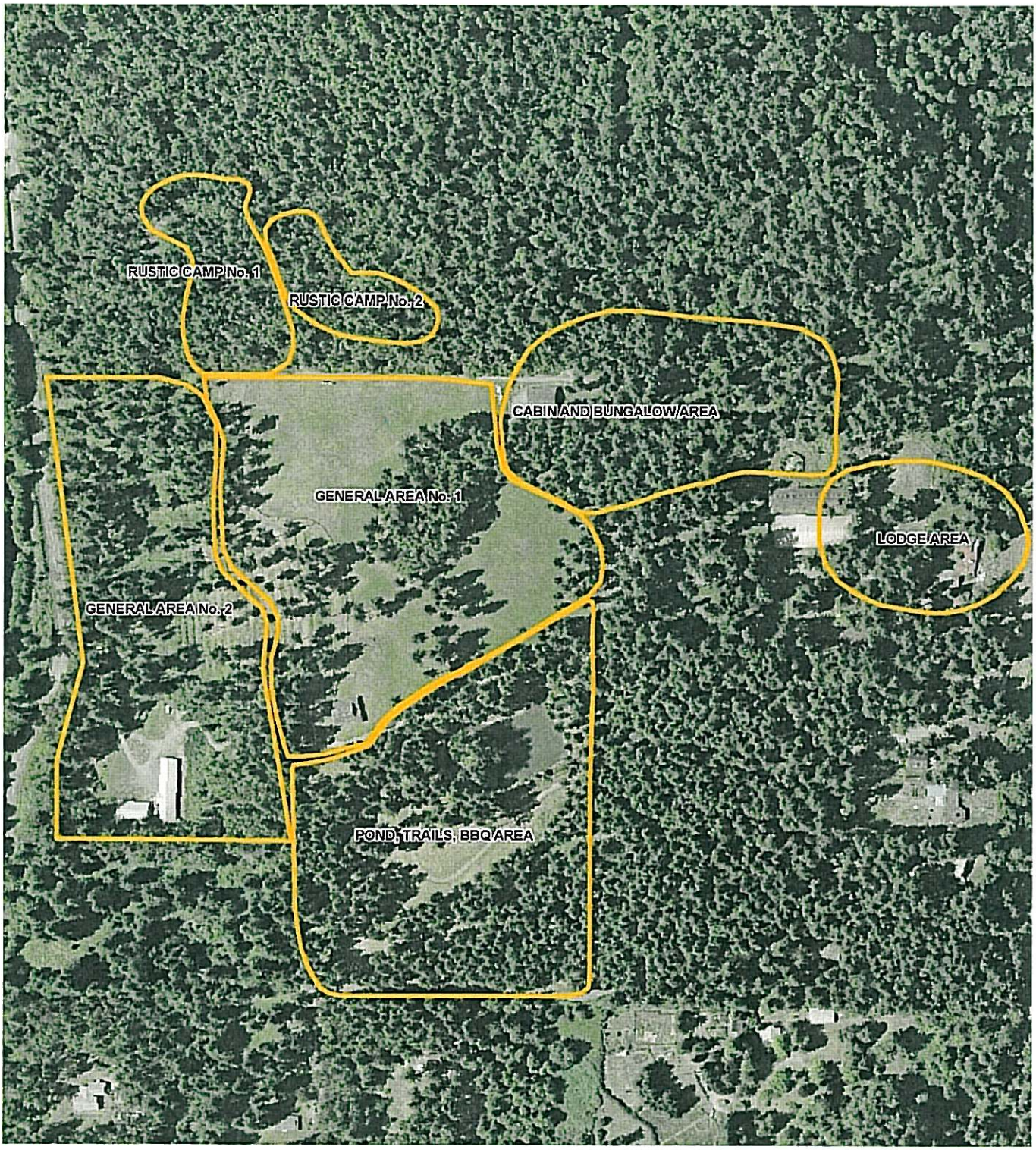
Attachments: Figure 1, *Land Decision Overview Map*
Table 1, *Summary of Soil Analytical Results*
Attachment A, Laboratory Analytical Reports

JK/PJ:bjj

FIGURE

SOIL MIXING PILOT-SCALE TEST RESULTS
Morningside Farm Project
Vashon Island, Washington

Farallon PN: 478-001



NOTE: ALL FEATURES AND INFORMATION PRESENTED ARE BASED ON FIGURES PROVIDED BY GEOENGINEERS, INC. AS DERIVED DURING THE GEOTECHNICAL ENGINEERING AND ENVIRONMENTAL ASSESSMENT SERVICES REPORT FOR THE LDS MORNINGSIDE FARM, DATED JUNE 13, 2005.

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0 300

APPROXIMATE SCALE IN FEET

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

FIGURE 1

LAND DECISION OVERVIEW MAP
MORNINGSIDE FARM
VASHON ISLAND, WASHINGTON

FARALLON PN: 478-001

Drawn By: DEW	Checked By: JK	Date: 3/04/08	Disk Reference: 478001

TABLE

SOIL MIXING PILOT-SCALE TEST RESULTS
Morningside Farm Project
Vashon Island, Washington

Farallon PN: 478-001

Table 1
Summary of Soil Analytical Results
Morningside Farm Property
Vashon Island, Washington
Farallon PN: 478-001

Sample Identification	Date Sampled	Latitude	Longitude	Depth (inches)[1]	XRF Results (milligrams per kilogram)	Soil Analytical Results (milligrams per kilogram)
					Arsenic	Arsenic[2]
Soil Sample Results in Test Areas Prior to Soil Mixing						
GATP#4-6	12/4/2007	47.3416N	122.5004W	6	<9.1	--
GATP#4-12	12/4/2007	47.3416N	122.5004W	12	<10.2	--
GATP#4-18	12/4/2007	47.3416N	122.5004W	18	<9.2	--
GATP#8-6	12/4/2007	47.3416N	122.4989W	6	**32.7**	--
GATP#8-12	12/4/2007	47.3416N	122.4989W	12	16.5	--
GATP#8-18	12/4/2007	47.3416N	122.4989W	18	19.4	--
GATP#8-24	12/4/2007	47.3416N	122.4989W	24	<12.5	<12
SS-SH158-0.5[5]	4/28/2004	47.3422N	122.5006W	6	--	7.8
SS-SH101-0.5[5]	4/28/2004	47.3421N	122.5006W	6	--	**72.5**
SS-SH100-0.5[5]	4/28/2004	47.342N	122.5006W	6	--	**83.7**
SS-SH107-0.5[5]	4/28/2004	47.342N	122.5003W	6	--	**24.1**
SS-SH102-0.5[5]	4/28/2004	47.3421N	122.5002W	6	--	**49.0**
SS-SH157-0.5[5]	4/28/2004	47.3422N	122.5003W	6	--	11.2
SS-SH103-0.5[5]	4/28/2004	47.3422N	122.4998W	6	--	**49.0**
SS-SH106-0.5[5]	4/28/2004	47.3421N	122.4999W	6	--	**74.2**
SS-SH155-0.5[5]	4/28/2004	47.3422N	122.4997W	6	--	7.1
Test Area 1 - Mixing to 12-inches Below the Ground Surface with Grass/Root Mass In-place						
TS1-12-052708-1	05/27/08	47 20 29.93988	-122 30 01.42833	12	<8	<11
TS1-12-052708-2	05/27/08	47 20 29.78450	-122 30 01.23576	12	<9	--
TS1-12-052708-3	05/27/08	47 20 29.74172	-122 30 00.93705	12	**40**	**29**
TS1-12-052708-4	05/27/08	47 20 29.95510	-122 30 00.55903	12	**26**	**25**
TS1-12-052708-5	05/27/08	47 20 29.93889	-122 30 00.12250	12	**65**	**48**
Test Area 2 - Mixing to 18-inches Below the Ground Surface with Grass/Root Mass In-place						
TS1-18-052708-6	05/27/08	47 20 29.97035	-122 30 00.02855	18	**32**	**56**
TS1-18-052708-7	05/27/08	47 20 29.81326	-122 30 00.28249	18	**38**	--
TS1-18-052708-8	05/27/08	47 20 29.88395	-122 30 00.47024	18	11	13
TS1-18-052708-9	05/27/08	47 20 29.83392	-122 30 00.71010	18	**32**	<11
TS1-18-052708-10	05/27/08	47 20 29.96580	-122 30 00.90936	18	<9	--
TS1-18-052708-11	05/27/08	47 20 29.90213	-122 30 01.13807	18	10	<11
TS1-18-052708-12	05/27/08	47 20 29.85634	-122 30 01.41176	18	**43**	**24**
Test Area 3 - Mixing to 12-inches Below the Ground Surface with Grass/Root Mass Removed						
TS2-12-052708-13	05/27/08	47 20 29.66595	-122 30 01.47456	12	**61**	**45**
TS2-12-052708-14	05/27/08	47 20 29.54837	-122 30 01.26157	12	**44**	--
TS2-12-052708-15	05/27/08	47 20 29.65929	-122 30 01.02709	12	**39**	**27**
TS2-12-052708-16	05/27/08	47 20 29.55205	-122 30 00.73639	12	**42**	--
TS2-12-052708-17	05/27/08	47 20 29.67417	-122 30 00.45415	12	16	15
TS2-12-052708-18	05/27/08	47 20 29.64447	-122 29 59.98312	12	16	15
TS2-12-052708-19	05/27/08	47 20 29.55697	-122 29 59.96752	12	16	<11
Test Area 4 - Mixing to 18-inches Below the Ground Surface with Grass/Root Mass Removed						
TS2-18-052708-20	05/27/08	47 20 29.65869	-122 30 00.21775	18	9	<11
TS2-18-052708-21	05/27/08	47 20 29.55621	-122 30 00.47934	18	15	<11
TS2-18-052708-22	05/27/08	47 20 29.64050	-122 30 00.81000	18	**34**	**33**
TS2-18-052708-23	05/27/08	47 20 29.53085	-122 30 01.20044	18	**28**	--
TS2-18-052708-24	05/27/08	47 20 29.61560	-122 30 01.48084	18	**42**	**37**
Confirmation Test Area 5 - Mixing to 18-inches Below the Ground Surface with Grass/Root Mass Removed[3]						
TS3-18-052708-25	05/27/08	47 20 29.31339	-122 30 01.35752	18	**25**	15
TS3-18-052708-26	05/27/08	47 20 29.30456	-122 30 01.07241	18	**50**	**40**
TS3-18-052708-27	05/27/08	47 20 29.32809	-122 30 00.74815	18	13	<11
TS3-18-052708-28	05/27/08	47 20 29.34849	-122 30 00.36213	18	13	<11
TS3-18-052708-29	05/27/08	47 20 29.38482	-122 29 59.98794	18	9	<11
MTCA Method A Cleanup Level for Soil[4]					**20**	**20**
Test Area 1 - Average Concentration of 12" samples with Top Soil					**29.6**	**28.3**
Test Area 2 - Average Concentration of 18" samples with Top Soil					**25.1**	**23.0**
Test Area 3 - Average Concentration of 12" samples without Top Soil					**33.4**	**22.6**
Test Area 4 - Average Concentration of 18" samples without Top Soil					**25.5**	**23.0**
Test Area 5 - Average Concentration of 18" samples without Top Soil					**22.0**	**17.6**

NOTES:

Results in **BOLD** denote concentrations are at or above MTCA Method A cleanup levels.

< denotes result is less than laboratory practical quantitation limit or analyte not detected at or above the reporting limit.

[1]Depth in inches below ground level.

[2]Analyzed by U.S. Environmental Protection Agency Method 6000/7000 Series.

[3] Farallon performed a second test in another area using the mixing method that appeared practicable based on the field screening results using the XRF measurements. This test was performed to confirm that the mixing results could be repeated in a separate area than the first practicable test area.

[4]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended November 2007.

[5] Samples collected by GeoEngineers on April 28, 2004.

ATTACHMENT A
LABORATORY ANALYTICAL REPORTS

SOIL MIXING PILOT-SCALE TEST RESULTS
Morningside Farm Project
Vashon Island, Washington

Farallon PN: 478-001

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 5, 2008

Jeff Kaspar
Farallon Consulting, LLC
975 5th Avenue NW
Issaquah, WA 98027

Re: Analytical Data for Project 478-001
Laboratory Reference No. 0805-210

Dear Jeff:

Enclosed are the analytical results and associated quality control data for samples submitted on May 28, 2008.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

Case Narrative

Samples were collected on May 27, 2008 and received by the laboratory on May 28, 2008. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

TOTAL ARSENIC
EPA 6010B

Date Extracted:	5-30&6-2-08
Date Analyzed:	6-2&3-08
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID	Lab ID	Result	PQL
TS1-12-052708-1	05-210-01	**ND**	11
TS1-12-052708-3	05-210-02	**29**	11
TS1-12-052708-4	05-210-03	**25**	11
TS1-12-052708-5	05-210-04	**48**	11
TS1-18-052708-6	05-210-05	**56**	11
TS1-18-052708-8	05-210-06	**13**	11
TS1-18-052708-9	05-210-07	**ND**	11
TS1-18-052708-11	05-210-08	**ND**	11
TS1-18-052708-12	05-210-09	**24**	11
TS2-12-052708-13	05-210-10	**45**	11
TS2-12-052708-15	05-210-11	**27**	11
TS2-12-052708-17	05-210-12	**15**	11
TS2-12-052708-18	05-210-13	**15**	11
TS2-12-052708-19	05-210-14	**ND**	11

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

TOTAL ARSENIC
EPA 6010B

Date Extracted:	5-30&6-2-08
Date Analyzed:	6-2&3-08
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID	Lab ID	Result	PQL
TS2-18-052708-20	05-210-15	**ND**	11
TS2-18-052708-21	05-210-16	**ND**	11
TS2-18-052708-22	05-210-17	**33**	11
TS2-18-052708-24	05-210-18	**37**	11
TS3-18-052708-25	05-210-19	**15**	11
TS3-18-052708-26	05-210-20	**40**	11
TS3-18-052708-27	05-210-21	**ND**	11
TS3-18-052708-28	05-210-22	**ND**	11
TS3-18-052708-29	05-210-23	**ND**	11

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

TOTAL ARSENIC
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-30-08
Date Analyzed:	6-2-08
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0530S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

TOTAL ARSENIC
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	6-2-08
Date Analyzed:	6-3-08
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0602S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

TOTAL ARSENIC
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 5-30-08
Date Analyzed: 6-2-08

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-221-01

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Arsenic	**ND**	**ND**	NA		10

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

TOTAL ARSENIC
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 6-2-08
Date Analyzed: 6-3-08

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-170-20

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Arsenic	**ND**	**ND**	NA		10

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

TOTAL ARSENIC
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 5-30-08
Date Analyzed: 6-2-08

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-221-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**107**	107	**108**	108	0	

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

TOTAL ARSENIC
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 6-2-08
Date Analyzed: 6-3-08

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-170-20

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**94.8**	95	**93.5**	94	1	

Date of Report: June 5, 2008
Samples Submitted: May 28, 2008
Laboratory Reference: 0805-210
Project: 478-001

% MOISTURE

Date Analyzed: 5-30-08

Client ID	Lab ID	% Moisture
TS1-12-052708-1	05-210-01	6
TS1-12-052708-3	05-210-02	11
TS1-12-052708-4	05-210-03	9
TS1-12-052708-5	05-210-04	13
TS1-18-052708-6	05-210-05	12
TS1-18-052708-8	05-210-06	10
TS1-18-052708-9	05-210-07	9
TS1-18-052708-11	05-210-08	7
TS1-18-052708-12	05-210-09	10
TS2-12-052708-13	05-210-10	13
TS2-12-052708-15	05-210-11	11
TS2-12-052708-17	05-210-12	9
TS2-12-052708-18	05-210-13	11
TS2-12-052708-19	05-210-14	11
TS2-18-052708-20	05-210-15	9
TS2-18-052708-21	05-210-16	10
TS2-18-052708-22	05-210-17	13
TS2-18-052708-24	05-210-18	13
TS3-18-052708-25	05-210-19	8
TS3-18-052708-26	05-210-20	13
TS3-18-052708-27	05-210-21	10
TS3-18-052708-28	05-210-22	12
TS3-18-052708-29	05-210-23	12

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: Farallon
Project Number: 478-001
Project Name: Morningside Farms
Project Manager: Jeff Kaspar
Sampled by: J. Ruark

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days)
  (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 05-210

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	Arsenic EPA 6000/7000 Methods	% Moisture
1	TSI-12-052708-1	5/27/08	1109	S	1														X	X
2	TSI-12-052708-3		1126																	
3	TSI-12-052708-4		1133																	
4	TSI-12-052708-5		1140																	
5	TSI-18-052708-6		1212																	
6	TSI-18-052708-8		1235																	
7	TSI-18-052708-9		1238																	
8	TSI-18-052708-11		1303																	
9	TSI-18-052708-12		1309																	
10	TS2-12-052708-13	↓	1335	↓	↓															

	Signature	Company	Date	Time
Relinquished by		Farallon	5-28-08	1100
Received by		Speedy Msngr	5-28-08	1420
Relinquished by		" "	"	1523
Received by	M. Vann	OSE	5/28/08	1523
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

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Chain of Custody

OnSite Environmental Inc.
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: Farallon
Project Number: 478-001
Project Name: Morningside Farms
Project Manager: Jeff Kaspar
Sampled by: J. Ruark

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Day ☐ 3 Day
- ☒ Standard (7 working days)
  (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 05-210

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	Arsenic EPA 6000/7000 Methods						% Moisture
11	TS2-12-052708-15	5/27/08	1348	S	1														X						X
12	TS2-12-052708-17		1355																						
13	TS2-12-052708-18		1405																						
14	TS2-12-052708-19		1435																						
15	TS2-18-052708-20		1440																						
16	TS2-18-052708-21		1447																						
17	TS2-18-052708-22		1452																						
18	TS2-18-052708-24		1506																						
19	TS3-18-052708-25		1526																						
20	TS3-18-052708-26	"	1528	"	"																				

	Signature	Company	Date	Time
Relinquished by		Farallon	5/28/08	1100
Received by		Speedy Msngr	5.28.08	1420
Relinquished by		"	"	1523
Received by		OSE	5/28/08	1523
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

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Chain of Custody

OnSite Environmental Inc.
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: Farallon
Project Number: 478-001
Project Name:
Project Manager:
Sampled by:

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 05-210

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	Arsenic EPA 6000/7000 Methods	% Moisture
21	TS3-18-052708-27	5/27/08	1534	S	1														X	X
22	TS3-18-052708-28	↓	1539	↓	↓															
23	TS3-18-052708-29	↓	1544	↓	↓															

	Signature	Company	Date	Time
Relinquished by		Farallon	5/27/08	1100
Received by		Speedy Mngr	5.28.08	1420
Relinquished by		" "	"	1523
Received by		OSE	5/28/08	1523
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☐

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