TECHNICAL MEMORANDUM

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ENVIRONMENTAL | GEOTECHNICAL | NATURAL RESOURCES

TO: Steve Teel, L. Hg., Washington State Department of Ecology

CC: John Felder, P.E., Environmental Services, Washington State Department of Natural Resources

FROM: Lauren Knickrehm, P.E. and Eric Weber, L. Hg.

DATE: July 30, 2014

RE: SUBSURFACE INVESTIGATION RESULTS
WEBSTER NURSERY SITE, SITE ID 3380
TUMWATER, WASHINGTON

INTRODUCTION

This technical memorandum presents findings from a subsurface investigation conducted in May 2014 at the Washington State Department of Natural Resources (DNR) former pesticide storage warehouse at Webster Nursery, located at 9805 Blomberg Street Southwest in Tumwater, Washington. The subsurface investigation was requested by Washington State Department of Ecology (Ecology) in a letter (Ecology 2014) and was conducted in accordance with the *Subsurface Investigation Activities Work Plan* (work plan; Landau Associates 2014). The investigation consisted of shallow direct-push drilling in the vicinity of a former remedial excavation area (the excavation area) and near two existing groundwater monitoring wells (SW-10 and SW-11) where detections of the pesticide heptachlor epoxide (HE) are above Model Toxics Control Act (MTCA) Method B groundwater cleanup levels (CULs). Soil samples from the borings were collected to evaluate the nature and extent of residual pesticide soil contamination that may be the cause of the HE detections at SW-10 and SW-11. This technical memorandum presents the site background, field activities and analytical results associated with this field work. The site location is shown on Figure 1.

BACKGROUND

In 1978, a concrete underground storage tank (UST) was installed south of the former pesticide storage warehouse. The UST was historically used to contain wash water and spills from pesticide mixing operations at the nursery. The original concrete UST was replaced with a metal UST in 1982. During removal of the metal UST in July 1996, soil and groundwater pesticide contamination was confirmed and a remedial excavation was planned and completed in 1996. Groundwater seepage in the bottom of the excavation limited the horizontal and vertical extent of the excavation so a smaller volume of soil was removed than planned. According to the site cleanup action plan (CAP), approximately 70 cubic yards (cy) of contaminated soil was removed for disposal. Field screening during excavation indicated soil contamination was left in place. The location of the excavation area is shown on Figure 2.

In August 1996, four shallow groundwater monitoring wells were installed around the excavation area to characterize groundwater as part of the long-term groundwater monitoring plan. In April 1999, six shallow soil borings (SB05 through SB10) were drilled around the excavation area to characterize residual pesticide contamination in soil. The surrounding surface topography is relatively flat and the typical boring depth was 12.5 feet (ft). Heptachlor, the parent compound of HE, and HE were detected in soil, but concentrations were below the MTCA Method B soil cleanup levels (Tetra Tech 1999). Heptachlor was only detected at soil boring SB10 (located through center of excavation area, below the vertical limits of the 1996 excavation). Where heptachlor was detected at SB10, daughter product HE was also detected. In addition to SB10, HE was detected at SB07 (located between SW-10 and SW-11) and SB09 (located west of excavation area). Data results from the soil boring samples indicate that residual pesticide soil contamination was present beneath and extended southeast of the excavation area. The highest concentrations occurred between about 5.5 ft and 8.5 ft below ground surface (BGS). The soil analytical results from the 1999 soil boring investigation are provided in Attachment 1 and the locations of the shallow groundwater monitoring wells and the 1999 soil borings are shown Figure 2.

The current Agreed Order (AO) for the site between Ecology and DNR (No. DE 00TCPSR-295, dated January 8, 2001) became effective in January 2001. Attached to the AO is the site CAP. Per the CAP, a component of the selected cleanup action is monitored natural attenuation (MNA), which requires ongoing groundwater monitoring of pesticide concentrations. The MNA groundwater monitoring plan has been in effect for more than 10 years, and heptachlor is no longer detected in groundwater while HE continues to be detected above MTCA cleanup levels at wells SW-10 and SW-11 (Landau Associates 2014). According to the CAP, the long-term timeframe for the site remedy is 5 to 10 years. However, concentrations of HE above MTCA cleanup levels have been observed for more than 10 years, which has caused Ecology to question the presence of residual pesticide soil contamination in their recent letter (Ecology 2014). The work plan was prepared in response to Ecology's letter and the work plan scope was implemented in May 2014.

GROUNDWATER LEVELS

The shallow groundwater monitoring wells around the direct-push investigation and excavation areas are SW-9, SW-10, SW-11, and SW-12. Using groundwater level data from a dry season sampling event (August 2009; DNR 2013) and a rainy season sampling event (February 2014; Landau Associates 2014), the average depth to water at these four wells is approximately 10.92 ft BGS in the dry season and 4.73 ft BGS in the wet season. The corresponding seasonal fluctuation is approximately 6.2 ft. Water level data information is provided in Table 1.

FIELD ACTIVITIES

Direct-push drilling was conducted on May 23, 2014 by Holocene Drilling, Inc. under contract to Landau Associates. Weather conditions were dry and shallow groundwater was encountered at various depths. A Geoprobe® direct-push drilling rig was used to advance a 2-inch inside-diameter core barrel with a removable polyethylene liner. A continuous soil core was collected inside the liner. Once the desired depth was reached, the liner and soil core were removed from the core barrel, soil lithology was documented, and soil samples were collected for laboratory analysis.

There were three planned boring locations, each with a maximum depth of 15 ft BGS. A total of five to six soil samples were planned per boring with specified discrete depths. One of the three planned borings (LAI-B13) was located in the excavation area and drilling was attempted five times. The first two attempts went to 16 ft BGS and the final three attempts went to 8 ft BGS. However, due to the small size core barrel and the relatively large gravels encountered, there was inadequate soil recovery to allow for collection of soil samples. When there was recovery, it consisted of 2 inches or less of gravel, often with a diameter of approximately 1 inch. The drillers determined that a hollow-stem auger drill rig or sonic rig would have been needed to collect the desired discrete soil samples through the excavation area.

The other two borings were completed successfully. The first of the two borings (LAI-B11) was proposed to be located between the excavation and SW-10. However, the same gravel conditions encountered in the excavation area were encountered during the first two drilling attempts at LAI-B11, which indicated that the excavation area extends farther to the south than previously delineated. Ultimately, LAI-B11 was located just to the southeast of SW-10 and was completed to its planned depth of 15 ft BGS. All samples were collected in accordance with the work plan. LAI-B12 was successfully drilled and logged on the first attempt to a depth of 15 ft BGS. Boring locations were initially recorded using a Trimble® GPS capable of sub-meter accuracy. Due to the proximity of the building and the tree canopy cover, the GPS accuracy was compromised. Therefore, a field verification visit was conducted the following week to map out the May 2014 boring locations by measuring off monitoring wells, the adjacent building, and permanent features on previous site figures. Only three of the five LAI-B13 boring location attempts were visible; LAI-B11 (and attempts one and two) and LAI-B12 were clearly marked. The locations of observed May 2014 borings are provided on Figure 3.

Upon completion of all sampling activities, the borings were backfilled in accordance with the state well regulations [Washington Administrative Code (WAC) 173-160] and patched to be consistent with the surrounding ground surface (soil). Soil cuttings were drummed on site and labeled. Disposal will be coordinated and overseen by DNR.

A total of 12 discrete soil samples were collected at LAI-B11 and at LAI-B12 between 4 ft BGS and 15 ft BGS. At each boring, the upper four discrete samples were to be analyzed on a standard turn-

around time for pesticides by U.S. Environmental Protection Agency (EPA) Method 8081A, and the deepest two samples were to be put on hold. Since there were detections in the upper four samples, the lower two samples were also analyzed for pesticides. Sample methodology and handling were in accordance with the work plan. All samples were submitted to TestAmerica laboratories in Tacoma, Washington. Soil quality data results are presented in Table 2 and the two laboratory reports are provided in Attachment 2.

The work plan called for collection of one composite soil sample from the soil cuttings in the drum. The sample was to be analyzed for pesticides by EPA Method 8081 and Resource Conservation and Recovery Act 8 metals. This sample has not yet been collected. As mentioned, the drums remain at the site and disposal has not yet taken place. During the upcoming semiannual groundwater monitoring event, the drum samples will be collected per the procedures outlined in the work plan in preparation for disposal.

DIRECT-PUSH DRILLING RESULTS

Soil from LAI-B11 and LAI-B12 generally consists of alluvium overlain by 0-1.5 ft of fill. The sand and silt content varies horizontally and vertically. The soil was screened for odors, but no odors were observed. Groundwater was encountered at varying depths. Soil boring logs for LAI-B11 and LAI-B12 are provided as Attachment 3. No boring log for LAI-B13 was prepared since adequate soil recovery was not obtained.

All discrete soil samples were analyzed for pesticides. Heptachlor was not detected in any of the samples. HE was detected in 10 of the 12 samples, all at concentrations below the MTCA Method B soil CUL of 110 micrograms per kilogram (µg/kg). The maximum concentration of HE was 27µg/kg at LAI-B12 (8ft BGS; saturated zone). The two samples where there were no detections of HE were the vadose zone samples (4 ft and 5.5 ft BGS) at LAI-B11. Other chemicals with MTCA Method B soil CULs (alpha-Chlordane and gamma-Chlordane) were detected but concentrations were well below the respective CULs. All soil analytical results are presented in Table 2.

DISCUSSION

The 1999 and 2014 soil investigation results indicate that HE soil contamination appears to extend from the excavation area to the southeast toward SW-10 and SW-11. The highest concentration of HE in soil from the 1999 investigation was 31.5 µg/kg at SB10 (6.5 ft BGS) and 31.7 µg/kg at SB07 (5.5 ft BGS). SB10 was located in the center of the excavation area and SB07 was located between wells SW-10 and SW-11. The highest concentration of HE in soil from the 2014 investigation was 27 µg/kg at LAI-B12 (8 ft BGS), which was located adjacent to well SW-11. Since HE is not mobile in soil and has a low potential to leach (Syracuse Research Corporation 2007), the current extent of HE in soil is interpreted

using data sets from both 1999 and 2014. All 1999 and 2014 soil borings and HE concentrations in soil are provided on Figure 4.

The horizontal and vertical extent of HE soil impacts appears to correlate with the HE groundwater concentrations at SW-10 and SW-11. Specifically, the soil boring locations with the maximum HE concentrations (SB07, SB10, and LAI-B11) are near SW-10 and SW-11. The depths of the maximum concentration soil samples are within a similar depth range that corresponds to the screen interval for SW-10 and SW-11 wells.

EFW/LKK/jrc

REFERENCES

Ecology. 2014. Letter: *Need for Additional Work, Washington State Department of Natural Resources (DNR) Webster Nursery Site, 9805 Bloomberg Street SW, Tumwater, Washington, Agreed Order DE 00 TCPSR-295, Facility/Site No. 8786341, Cleanup Site ID No. 3380*. From Steve Teel, Toxics Cleanup Program, Washington State Department of Ecology, to John Felder, Engineering Division, Washington State Department of Natural Resources. January 9.

DNR. 2013. Technical Memorandum: *September 3 – 4, 2013 DNR Webster Nursery Groundwater Sampling Event, Former pesticide storage warehouse UST site, Thurston Co., Agreed Order #DEOOTCPSR295*. November 26.

Landau Associates. 2014. Technical Memorandum: *February 2014 Semiannual Groundwater Monitoring, Webster Nursery Site, Site ID 3380.* Prepared for Washington State Department of Ecology on behalf of the Washington State Department of Natural Resources. March 27.

Syracuse Research Corporation. 2007. Report: *Toxicological Profile for Heptachlor and Heptachlor Epoxide*. Prepared for U.S. Department of Health and Human Services. November.

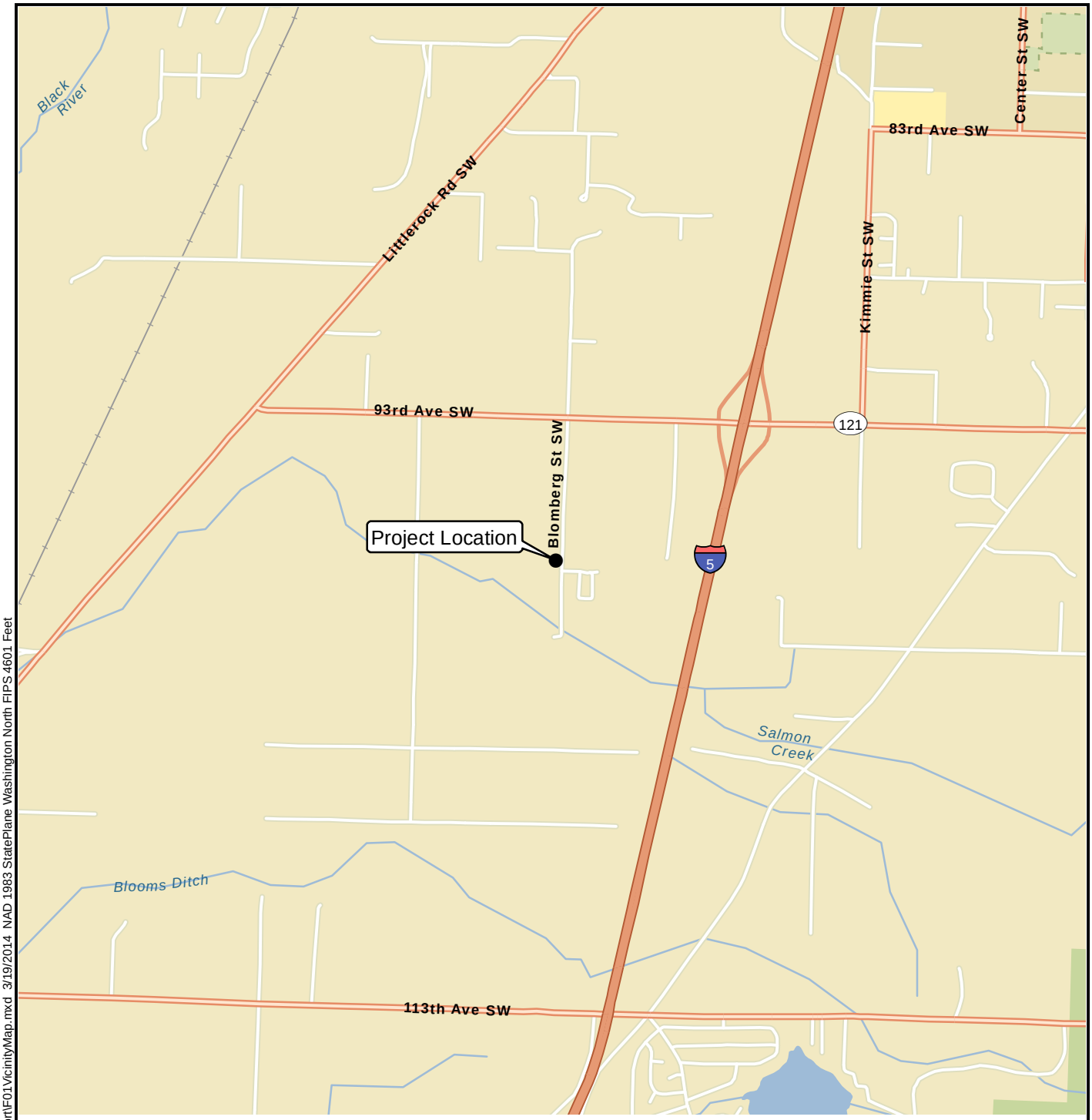
Tetra Tech. 1999. Report: *Remedial Investigation/Feasibility Study, Pesticide Storage Warehouse, Webster Nursery, Thurston County, Washington.* Prepared for Washington State Department of Natural Resources, Engineering Division, Olympia, Washington. June.

ATTACHMENTS

Figure 1: Vicinity Map
Figure 2: Historical Site Features
Figure 3: Site Exploration Plan
Figure 4: Heptachlor Epoxide Concentrations in Soil and Groundwater (Most Recent)

Table 1: Groundwater Levels Comparison
Table 2: Soil Analytical Results

Attachment 1: Summary of 1999 Subsurface Soil Investigation Analytical Results
Attachment 2: Laboratory Analytical Results
Attachment 3: Boring Logs



N

0 0.5 1

Miles

Data Source: Esri 2012

G:\Projects\774\006\Semiannual GW Monitoring Report\F01VicinityMap.mxd 3/19/2014 NAD 1983 StatePlane Washington North FIPS 4601 Feet

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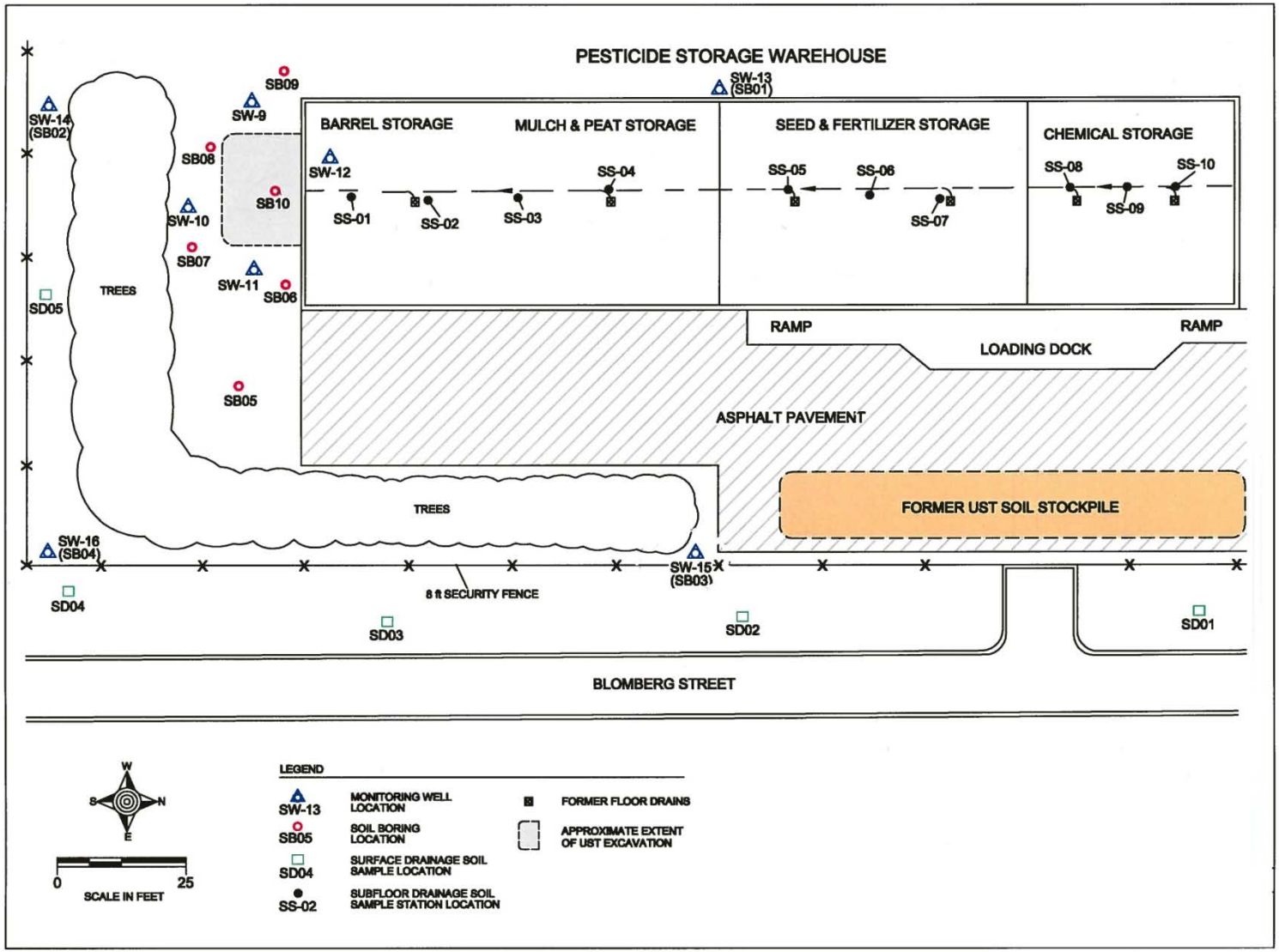
Webster Nursery Site Tumwater, Washington	**Vicinity Map**	Figure 1



Resource: Tetra Tech 1999, Figure 5; historical borings from 1999; excavation from 1996.

Webster Nursery Site Tumwater, Washington	**Historical Site Features**	Figure 2

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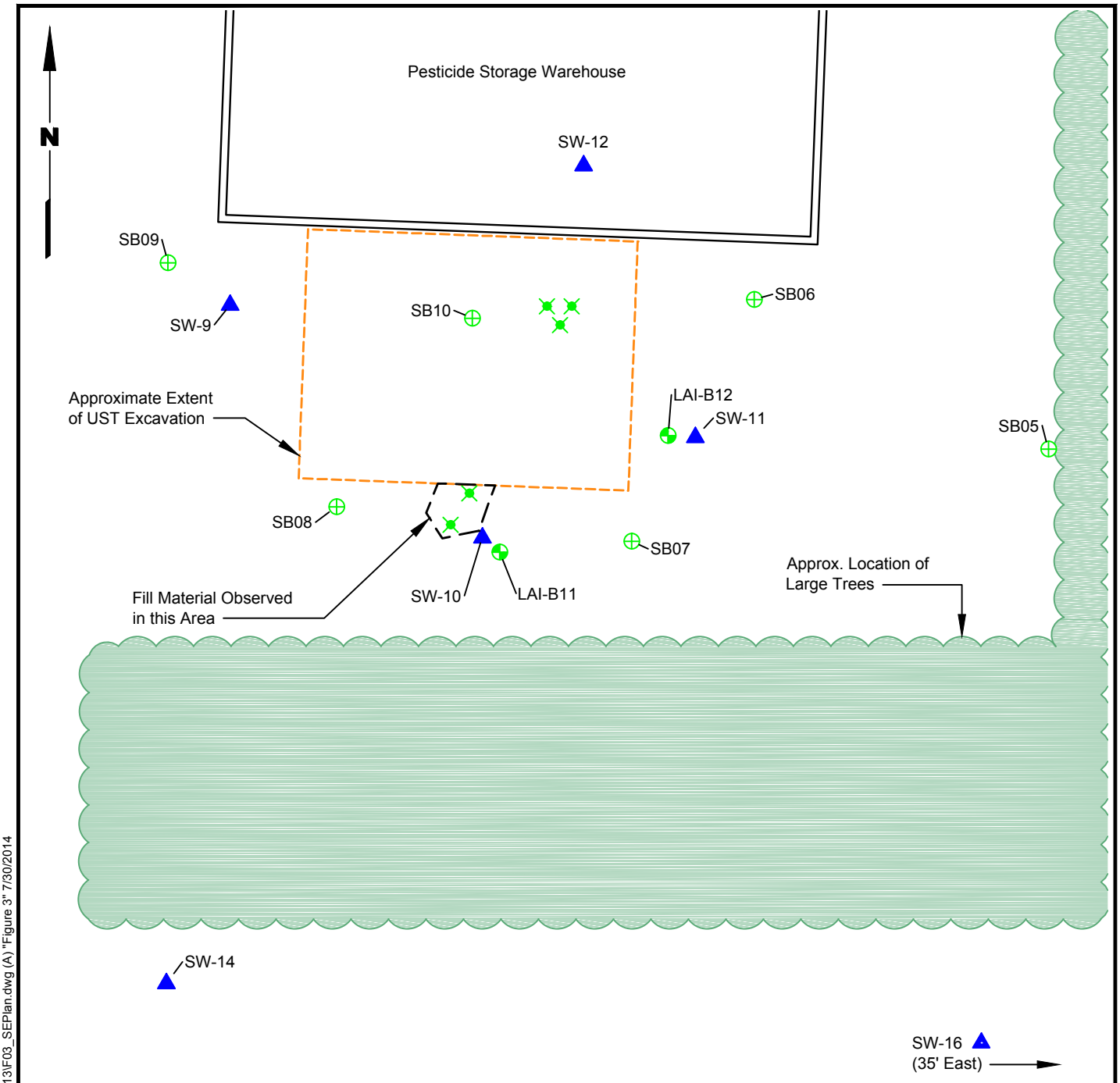

Notes

1. Locations of UST Excavation Area, former soil borings, and wells SW-14 and SW-16 adapted from Tetra Tech 1999, Figure 5.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Source: Tetra Tech, 1999

Legend

SB09 — 1999 Soil Boring
LAI-B11 — 2014 Soil Boring
2014 Attempted Boring
SW-10 — Groundwater Monitoring Well

0 10 20
Scale in Feet

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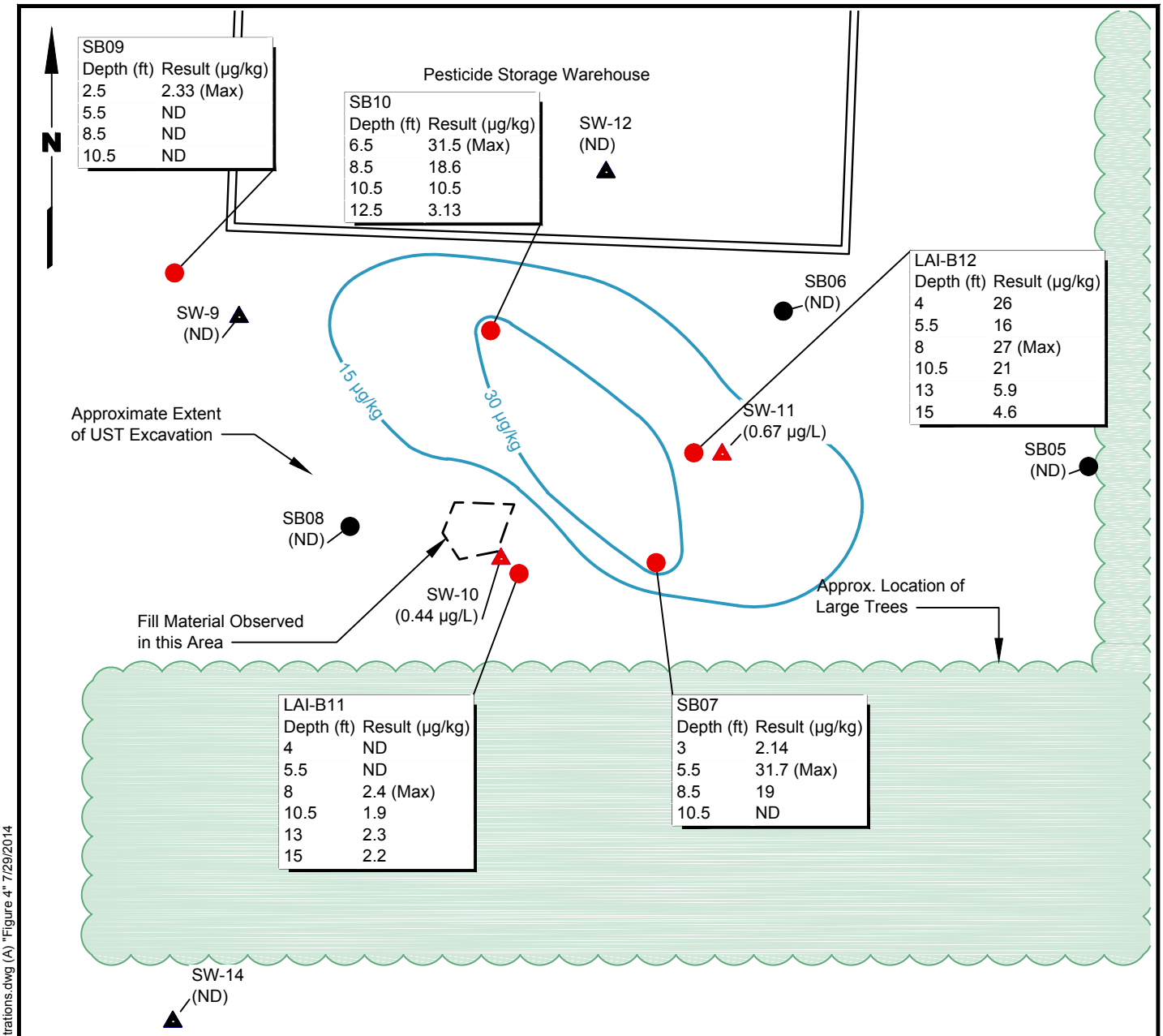
Webster Nursery Site Tumwater, Washington	**Site Exploration Plan**	Figure 3



Notes

1. µg/kg = Micrograms per Kilogram
   µ/L = Micrograms per Liter
   ND = Not Detected

2. Complete soil heptachlor epoxide results from 1999 and 2014 are provided in Attachment 1 and Table 1, respectively.

3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Source: Tetra Tech, 1999

Legend

- No Detection in Soil
- Detection in Soil
- No Detection in Groundwater
- Detection in Groundwater
- Soil Concentration Contour

0 10 20
Scale in Feet

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Webster Nursery Site
Tumwater, Washington

Heptachlor Epoxide Concentrations in Soil and Groundwater (Most Recent)

Figure 4

TABLE 1
GROUNDWATER LEVELS COMPARISON
WEBSTER NURSERY
TUMWATER, WASHINGTON

	Dry Season		Wet Season		Seasonal Fluctuation
Well	DTW	Date	DTW	Date	
SW-9	11.34	Aug-09	4.19	Feb-14	7.15
SW-10	10.67	Aug-09	5.37	Feb-14	5.3
SW-11	9.62	Aug-09	4.19	Feb-14	5.43
SW-12	12.04	Aug-09	5.17	Feb-14	6.87
Average	10.92		4.73		6.19

TABLE 2
SOIL ANALYTICAL RESULTS
WEBSTER NURSERY
TUMWATER, WASHINGTON

Location:	MTCA	LAI-B11 (4)	LAI-B11 (5.5)	LAI-B11 (8)	LAI-B11 (10.5)	LAI-B11 (13)	LAI-B11 (15)	LAI-B12 (4)
Lab ID:	Method B	580-43745-7	580-43745-8	580-43745-9	580-43745-10	580-43745-11	580-43745-12	580-43745-1
Date Collected:	Soil Cleanup Level	5/23/2014	5/23/2014	5/23/2014	5/23/2014	5/23/2014	5/23/2014	5/23/2014
PESTICIDES (µg/kg)								
EPA Method 8081A								
Aldrin		1.2 U	1.2 U	1.5 U	1.3 U	1.5 UJ	1.2 UJ	1.2 U
alpha-BHC		1.2 U	1.2 U	1.5 U	1.3 U	1.5 UJ	1.2 UJ	1.2 U
beta-BHC		1.2 U	1.2 U	1.5 U	1.3 U	1.5 UJ	1.2 UJ	1.2 U
delta-BHC		1.2 U	1.2 U	1.5 U	1.3 U	1.5 UJ	1.2 UJ	1.2 U
gamma-BHC (Lindane)		1.2 U	1.2 U	1.5 U	1.3 U	1.5 UJ	1.2 UJ	1.2 U
4,4'-DDD		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
4,4'-DDE		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
4,4'-DDT		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
Dieldrin		2.3 U	2.3 U	2.9 U	2.7 U	1.5 UJ	2.5 UJ	2.5 U
Endosulfan I		1.2 U	1.2 U	1.5 U	1.3 U	1.5 UJ	1.2 UJ	1.2 U
Endosulfan II		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
Endosulfan sulfate		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
Endrin		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
Endrin aldehyde		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
Heptachlor		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
Heptachlor epoxide	110	1.2 U	1.2 U	**2.4**	**1.9**	**2.3** J	**2.2** J	**26**
Methoxychlor		12 U	12 U	15 U	13 U	15 UJ	12 UJ	12 U
Endrin ketone		2.3 U	2.3 U	2.9 U	2.7 U	2.9 UJ	2.5 UJ	2.5 U
Toxaphene		120 U	120 U	150 U	130 U	150 UJ	120 UJ	120 U
alpha-Chlordane	2860	1.2 U	1.2 U	1.5 U	1.3 U	1.5 UJ	1.2 UJ	**3.3**
gamma-Chlordane	2860	1.2 U	1.2 U	1.5 U	**1.9**	**7.4** J	**4.3** J	**5.3**

TABLE 2
SOIL ANALYTICAL RESULTS
WEBSTER NURSERY
TUMWATER, WASHINGTON

Location:	LAI-B12 (5.5)	LAI-B12 (8)	LAI-B12 (10.5)	LAI-B12 (13)	LAI-B12 (15)
Lab ID:	580-43745-2	580-43745-3	580-43745-4	580-43745-5	580-43745-6
Date Collected:	5/23/2014	5/23/2014	5/23/2014	5/23/2014	5/23/2014
PESTICIDES (µg/kg)					
EPA Method 8081A					
Aldrin	1.3 U	1.4 U	1.4 U	1.3 UJ	1.2 UJ
alpha-BHC	1.3 U	1.4 U	1.4 U	1.3 UJ	1.2 UJ
beta-BHC	1.3 U	1.4 U	1.4 U	1.3 UJ	1.2 UJ
delta-BHC	1.3 U	1.4 U	1.4 U	1.3 UJ	1.2 UJ
gamma-BHC (Lindane)	1.3 U	1.4 U	1.4 U	1.3 UJ	1.2 UJ
4,4'-DDD	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
4,4'-DDE	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
4,4'-DDT	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
Dieldrin	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
Endosulfan I	1.3 U	1.4 U	1.4 U	1.3 UJ	1.2 UJ
Endosulfan II	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
Endosulfan sulfate	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
Endrin	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
Endrin aldehyde	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
Heptachlor	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
Heptachlor epoxide	**16**	**27**	**21**	**5.9** J	**4.6** J
Methoxychlor	13 U	14 U	14 U	13 UJ	12 UJ
Endrin ketone	2.6 U	2.7 U	2.7 U	2.5 UJ	2.5 UJ
Toxaphene	130 U	140 U	140 U	130 UJ	120 UJ
alpha-Chlordane	**1.7**	**2.6**	1.4 U	1.3 UJ	1.2 UJ
gamma-Chlordane	**3.9**	**8.4**	**2.6**	**4.4** J	**4.7** J

MTCA = Model Toxics Control Act

U = Indicates the compound was not detected at the reported concentration.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ =

Bold = Detected compound.

N/A= No available MTCA Method A or B soil cleanup level

ATTACHMENT 1

Summary of 1999 Subsurface Soil Investigation Analytical Results

TABLE 8. SUMMARY OF SUBSOIL SAMPLE ANALYTICAL RESULTS
PESTICIDE STORAGE WAREHOUSE RI/FS
WEBSTER NURSERY, THURSTON COUNTY, WASHINGTON

Sample Designation	Sample[a] Depth (ft – bgs)	Analytical Results (ug/kg)[b]						
		Organochlorine Pesticides (EPA 8081A)				Chlorinated Herbicides (EPA 8151A)		Percent Total Organic Carbon[c] (EPA 9060)
		Alpha Chlordane	Gamma Chlordane	Heptachlor	Heptachlor Epoxide	2,4-D	2,4,5 TP	
PSW-SB01-5.0	5.0 – 6.5	ND[d]	ND	ND	ND	ND J[f]	ND J	NA[e]
PSW-SB02-5.0	5.0 – 6.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB03-5.0	5.0 – 6.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB04-5.0	5.0 – 6.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB05-2.5	2.5 – 5.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB05-5.5	5.5 – 8.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB05-8.5	8.5 – 10.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB05-10.5	10.5 – 12.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB06-2.5	2.5 – 5.5	ND	ND	ND	ND	ND	ND	0.16
PSW-SB06-6.0	6.0 – 8.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB06-8.5	8.5 – 10.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB06-10.5	10.5 – 12.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB07-3.0	3.0 – 5.5	ND	ND	ND	2.14	ND	ND	NA
PSW-SB07-5.5	5.5 – 8.5	ND J	ND J	ND J	31.7 J	ND	ND	0.16
PSW-SB07-8.5	8.5 – 10.5	ND J	ND J	ND J	19.0 J	ND	ND	NA
PSW-SB07-10.5	10.5 – 12.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB08-3.0	3.0 – 5.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB08-6.0	6.0 – 8.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB08-15.0[g]	6.0 – 8.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB08-8.5	8.5 – 10.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB08-10.5	10.5 – 12.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB09-2.5	2.5 – 5.5	ND J	ND J	ND J	2.33 J	8.17 J[h]	ND	NA
PSW-SB09-5.5	5.5 – 8.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB09-8.5	8.5 – 10.5	ND	ND	ND	ND	ND	ND	NA
PSW-SB09-10.5	10.5 – 12.5	ND J	ND J	ND J	ND J	ND	ND	NA
PSW-SB10-6.5	6.5 – 8.5	27.1	139	144	31.5	ND	ND	NA
PSW-SB10-8.5	8.5 – 10.5	20.9	90.1	55.3	18.6	ND	30.9	0.09
PSW-SB10-10.5	10.5 – 12.5	ND J	ND J	ND J	10.5 J	ND J[i]	ND J[i]	NA
PSW-SB10-12.5	10.5 – 12.5	3.04 J	ND J	ND J	3.13 J	ND	ND	NA
Equipment Blank	NA	ND	ND	ND	ND	ND	ND	NA
Laboratory Reporting Limit (ug/kg)		1.0	0.8	1.0	1.0	5.0	1.0	0.05
MTCA Method B Residential Soil Cleanup Level (ug/kg)[j]		2,860[k]		222	110	800,000	640,000	NA

a ft – bgs = Feet below ground surface.
b The summary of soil sample results specifically includes only those compounds detected at or above the associated laboratory reporting limit during the investigation.
c Total organic carbon results reported as percent TOC
d ND = Not detected at or above the associated laboratory reporting limit.
e NA = Not Applicable.
f J = Unless otherwise indicated, data flag indicates an estimated concentration due to slight exceedance of the recommended sample holding time.
g Field duplicate Sample PSW-SB08-15.0 collected concurrently with project sample PSW-SB08-6.0.
h J - flag indicates an estimated concentration based on poor laboratory duplicate precision for this compound.
i J – flag indicates an estimated concentration base don low surrogate recoveries.
j Model Toxics Control Act (MTCA) Method B Residential Soil Cleanup Levels, as published in the Cleanup Levels and Risk Calculations (CLARC) Update, February 1996. For those contaminants with both carcinogenic and noncarcinogenic State Cleanup Levels, the carcinogenic value has been applied.
k Chlordane cleanup level based on change in chronic slope factor from 1.3 to 0.35 $(mg/kg\text{-}day)^{-1}$, EPA Integrated Risk Information System (IRIS), on-line database search conducted June 11, 1998.

ATTACHMENT 2

Laboratory Analytical Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-43745-1
Client Project/Site: Webster Nursery, Tumwater, WA

For:
Landau & Associates, Inc.
950 Pacific Avenue, Suite 515
Tacoma, Washington 98402

Attn: Ms. Lauren Knickrehm

Authorized for release by:
6/11/2014 2:51:03 PM

Melissa Armstrong, Project Manager II
(253)248-4975
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Table of Contents

Case Narrative

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-1

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Laboratory: TestAmerica Seattle

Narrative

Receipt
The samples were received on 5/23/2014 12:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 13.4º C.

GC Semi VOA - Method(s) 8081A
The continuing calibration verification (CCV) associated with analytical batch 160707 recovered above the upper control limit for Endrin. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been "^" qualified and reported. The following samples are impacted: (CCV 580-160707/15), (CCVRT 580-160707/2), (LCS 580-160220/2-A), (LCSD 580-160220/3-A), (MB 580-160220/1-A), LAI-B11(10.5) (580-43745-10), LAI-B11(4) (580-43745-7), LAI-B11(5.5) (580-43745-8), LAI-B11(8) (580-43745-9), LAI-B12(10.5) (580-43745-4), LAI-B12(4) (580-43745-1), LAI-B12(5.5) (580-43745-2), LAI-B12(8) (580-43745-3).

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: 11 injections were analyzed between CCV injections rather than the SOP specified 10 injections.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-43745-1	LAI-B12(4)	Solid	05/23/14 08:45	05/23/14 12:05
580-43745-2	LAI-B12(5.5)	Solid	05/23/14 08:47	05/23/14 12:05
580-43745-3	LAI-B12(8)	Solid	05/23/14 08:49	05/23/14 12:05
580-43745-4	LAI-B12(10.5)	Solid	05/23/14 08:51	05/23/14 12:05
580-43745-7	LAI-B11(4)	Solid	05/23/14 09:50	05/23/14 12:05
580-43745-8	LAI-B11(5.5)	Solid	05/23/14 09:52	05/23/14 12:05
580-43745-9	LAI-B11(8)	Solid	05/23/14 09:54	05/23/14 12:05
580-43745-10	LAI-B11(10.5)	Solid	05/23/14 09:56	05/23/14 12:05

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☐ Rush
☐ Short Hold

Chain of Custody Record

6/11/2014

Client	Client Contact	Date	Chain of Custody Number
DNR	Lauren Knickrehm	5/23/14	22692
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page**
PO Box 47030	253-926-2493	437 45	Page 1 of 1
City	**State / Zip Code**	**Sampler**	**Lab Contact**
Olympia	WA 98504	SMM	SMM
Project Name and Location (State)	**Billing Contact**		
Webster Nursery, Olympia WA	John Felder		
Contract/Purchase Order/Quote No.			

Sample I.D. and Location/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	Analysis: Organochlorine Pest. 8081A	HOLD
LA1-B12 (4)	5/23/14	845				X	X						X	
LA1-B12 (5.5)		847				X	X						X	
LA1-B12 (8)		849				X	X						X	
LA1-B12 (10.5)		851				X	X						X	
LA1-B12 (13)		853				X	X							X
LA1-B12 (15)		855				X	X							X
LA1-B11 (4)		950				X	X						X	
LA1-B11 (5.5)		952				X	X						X	
LA1-B11 (8)		954				X	X						X	
LA1-B11 (10.5)		956				X	X						X	
LA1-B11 (13)		958				X	X							X
LA1-B11 (15)		1000				X	X							X

Special Instructions/ Conditions of Receipt

580-43745 Chain of Custody

Page 6 of 17

Client drop
Lg Blu/wht wet/other
IR = 13.4/13.2 °C

Cooler
☒ Yes ☐ No Cooler Temp: _____

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 (business days)
☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☒ 10 Days ☐ 15 Days ☐ Other _____

QC Requirements (Specify)

	Sign/Print	Date	Time
1. Relinquished By	Brian Mott	5/23/14	1205
2. Relinquished By			
3. Relinquished By			
1. Received By	Tom Blankinship	5/23/14	1205
2. Received By			
3. Received By			

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Landau & Associates, Inc.

Job Number: 580-43745-1

Login Number: 43745

List Source: TestAmerica Seattle

List Number: 1

Creator: McDaniel, Ronald T

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not present
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	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received 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	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: LAI-B12(4)
Date Collected: 05/23/14 08:45
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-1
Matrix: Solid
Percent Solids: 76.8

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
alpha-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
alpha-Chlordane	**3.3**		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
beta-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
4,4'-DDD	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
4,4'-DDE	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
4,4'-DDT	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
delta-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Dieldrin	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Endosulfan I	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Endosulfan II	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Endosulfan sulfate	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Endrin	ND	^	2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Endrin aldehyde	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Endrin ketone	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
gamma-BHC (Lindane)	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
gamma-Chlordane	**5.3**		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Heptachlor	ND		2.5	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Heptachlor epoxide	**26**		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Methoxychlor	ND		12	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1
Toxaphene	ND		120	ug/Kg	☼	06/02/14 18:04	06/10/14 08:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*94*		*40 - 158*	*06/02/14 18:04*	*06/10/14 08:55*	*1*
Tetrachloro-m-xylene	*62*		*49 - 123*	*06/02/14 18:04*	*06/10/14 08:55*	*1*

Client Sample ID: LAI-B12(5.5)
Date Collected: 05/23/14 08:47
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-2
Matrix: Solid
Percent Solids: 73.9

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
alpha-BHC	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
alpha-Chlordane	**1.7**		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
beta-BHC	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
4,4'-DDD	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
4,4'-DDE	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
4,4'-DDT	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
delta-BHC	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Dieldrin	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Endosulfan I	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Endosulfan II	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Endosulfan sulfate	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Endrin	ND	^	2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Endrin aldehyde	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Endrin ketone	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
gamma-BHC (Lindane)	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
gamma-Chlordane	**3.9**		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Heptachlor	ND		2.6	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Heptachlor epoxide	**16**		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1
Methoxychlor	ND		13	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: LAI-B12(5.5)
Date Collected: 05/23/14 08:47
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-2
Matrix: Solid
Percent Solids: 73.9

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Toxaphene	ND		130	ug/Kg	☼	06/02/14 18:04	06/10/14 09:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*95*		*40 - 158*	*06/02/14 18:04*	*06/10/14 09:11*	*1*
Tetrachloro-m-xylene	*70*		*49 - 123*	*06/02/14 18:04*	*06/10/14 09:11*	*1*

Client Sample ID: LAI-B12(8)
Date Collected: 05/23/14 08:49
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-3
Matrix: Solid
Percent Solids: 70.3

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
alpha-BHC	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
alpha-Chlordane	**2.6**		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
beta-BHC	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
4,4'-DDD	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
4,4'-DDE	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
4,4'-DDT	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
delta-BHC	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Dieldrin	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Endosulfan I	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Endosulfan II	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Endosulfan sulfate	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Endrin	ND	^	2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Endrin aldehyde	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Endrin ketone	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
gamma-BHC (Lindane)	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
gamma-Chlordane	**8.4**		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Heptachlor	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Heptachlor epoxide	**27**		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Methoxychlor	ND		14	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1
Toxaphene	ND		140	ug/Kg	☼	06/02/14 18:04	06/10/14 09:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*88*		*40 - 158*	*06/02/14 18:04*	*06/10/14 09:26*	*1*
Tetrachloro-m-xylene	*81*		*49 - 123*	*06/02/14 18:04*	*06/10/14 09:26*	*1*

Client Sample ID: LAI-B12(10.5)
Date Collected: 05/23/14 08:51
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-4
Matrix: Solid
Percent Solids: 72.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
alpha-BHC	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
alpha-Chlordane	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
beta-BHC	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
4,4'-DDD	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
4,4'-DDE	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
4,4'-DDT	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
delta-BHC	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Dieldrin	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Endosulfan I	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: LAI-B12(10.5)
Date Collected: 05/23/14 08:51
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-4
Matrix: Solid
Percent Solids: 72.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan II	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Endosulfan sulfate	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Endrin	ND	^	2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Endrin aldehyde	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Endrin ketone	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
gamma-BHC (Lindane)	ND		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
gamma-Chlordane	**2.6**		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Heptachlor	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Heptachlor epoxide	**21**		1.4	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Methoxychlor	ND		14	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1
Toxaphene	ND		140	ug/Kg	☼	06/02/14 18:04	06/10/14 09:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*91*		*40 - 158*	*06/02/14 18:04*	*06/10/14 09:42*	*1*
Tetrachloro-m-xylene	*83*		*49 - 123*	*06/02/14 18:04*	*06/10/14 09:42*	*1*

Client Sample ID: LAI-B11(4)
Date Collected: 05/23/14 09:50
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-7
Matrix: Solid
Percent Solids: 83.3

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
alpha-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
alpha-Chlordane	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
beta-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
4,4'-DDD	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
4,4'-DDE	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
4,4'-DDT	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
delta-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Dieldrin	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Endosulfan I	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Endosulfan II	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Endosulfan sulfate	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Endrin	ND	^	2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Endrin aldehyde	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Endrin ketone	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
gamma-BHC (Lindane)	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
gamma-Chlordane	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Heptachlor	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Heptachlor epoxide	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Methoxychlor	ND		12	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1
Toxaphene	ND		120	ug/Kg	☼	06/02/14 18:04	06/10/14 09:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*101*		*40 - 158*	*06/02/14 18:04*	*06/10/14 09:58*	*1*
Tetrachloro-m-xylene	*89*		*49 - 123*	*06/02/14 18:04*	*06/10/14 09:58*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: LAI-B11(5.5)
Date Collected: 05/23/14 09:52
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-8
Matrix: Solid
Percent Solids: 81.3

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
alpha-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
alpha-Chlordane	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
beta-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
4,4'-DDD	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
4,4'-DDE	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
4,4'-DDT	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
delta-BHC	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Dieldrin	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Endosulfan I	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Endosulfan II	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Endosulfan sulfate	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Endrin	ND	^	2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Endrin aldehyde	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Endrin ketone	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
gamma-BHC (Lindane)	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
gamma-Chlordane	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Heptachlor	ND		2.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Heptachlor epoxide	ND		1.2	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Methoxychlor	ND		12	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1
Toxaphene	ND		120	ug/Kg	☼	06/02/14 18:04	06/10/14 10:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*102*		*40 - 158*	*06/02/14 18:04*	*06/10/14 10:13*	*1*
Tetrachloro-m-xylene	*92*		*49 - 123*	*06/02/14 18:04*	*06/10/14 10:13*	*1*

Client Sample ID: LAI-B11(8)
Date Collected: 05/23/14 09:54
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-9
Matrix: Solid
Percent Solids: 66.1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
alpha-BHC	ND		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
alpha-Chlordane	ND		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
beta-BHC	ND		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
4,4'-DDD	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
4,4'-DDE	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
4,4'-DDT	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
delta-BHC	ND		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Dieldrin	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Endosulfan I	ND		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Endosulfan II	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Endosulfan sulfate	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Endrin	ND	^	2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Endrin aldehyde	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Endrin ketone	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
gamma-BHC (Lindane)	ND		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
gamma-Chlordane	ND		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Heptachlor	ND		2.9	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Heptachlor epoxide	**2.4**		1.5	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1
Methoxychlor	ND		15	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: LAI-B11(8)
Date Collected: 05/23/14 09:54
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-9
Matrix: Solid
Percent Solids: 66.1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Toxaphene	ND		150	ug/Kg	☼	06/02/14 18:04	06/10/14 10:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*93*		*40 - 158*	*06/02/14 18:04*	*06/10/14 10:29*	*1*
Tetrachloro-m-xylene	*83*		*49 - 123*	*06/02/14 18:04*	*06/10/14 10:29*	*1*

Client Sample ID: LAI-B11(10.5)
Date Collected: 05/23/14 09:56
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-10
Matrix: Solid
Percent Solids: 73.1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
alpha-BHC	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
alpha-Chlordane	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
beta-BHC	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
4,4'-DDD	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
4,4'-DDE	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
4,4'-DDT	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
delta-BHC	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Dieldrin	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Endosulfan I	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Endosulfan II	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Endosulfan sulfate	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Endrin	ND	^	2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Endrin aldehyde	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Endrin ketone	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
gamma-BHC (Lindane)	ND		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
gamma-Chlordane	**1.9**		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Heptachlor	ND		2.7	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Heptachlor epoxide	**1.9**		1.3	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Methoxychlor	ND		13	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1
Toxaphene	ND		130	ug/Kg	☼	06/02/14 18:04	06/10/14 10:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*93*		*40 - 158*	*06/02/14 18:04*	*06/10/14 10:45*	*1*
Tetrachloro-m-xylene	*85*		*49 - 123*	*06/02/14 18:04*	*06/10/14 10:45*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 580-160220/1-A
Matrix: Solid
Analysis Batch: 160707

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160220

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
alpha-BHC	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
alpha-Chlordane	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
beta-BHC	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
4,4'-DDD	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
4,4'-DDE	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
4,4'-DDT	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
delta-BHC	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Dieldrin	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Endosulfan I	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Endosulfan II	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Endosulfan sulfate	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Endrin	ND	^	2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Endrin aldehyde	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Endrin ketone	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
gamma-BHC (Lindane)	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
gamma-Chlordane	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Heptachlor	ND		2.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Heptachlor epoxide	ND		1.0	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Methoxychlor	ND		10	ug/Kg		06/02/14 18:04	06/10/14 07:52	1
Toxaphene	ND		100	ug/Kg		06/02/14 18:04	06/10/14 07:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*96*		*40 - 158*	*06/02/14 18:04*	*06/10/14 07:52*	*1*
Tetrachloro-m-xylene	*76*		*49 - 123*	*06/02/14 18:04*	*06/10/14 07:52*	*1*

Lab Sample ID: LCS 580-160220/2-A
Matrix: Solid
Analysis Batch: 160707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160220

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	20.0	16.5		ug/Kg		82	54 - 128
alpha-BHC	20.0	15.3		ug/Kg		76	49 - 124
alpha-Chlordane	20.0	17.8		ug/Kg		89	54 - 134
beta-BHC	20.0	16.6		ug/Kg		83	51 - 129
4,4'-DDD	20.0	16.0		ug/Kg		80	48 - 137
4,4'-DDE	20.0	16.9		ug/Kg		85	53 - 128
4,4'-DDT	20.0	16.8		ug/Kg		84	43 - 144
delta-BHC	20.0	15.9		ug/Kg		80	36 - 139
Dieldrin	20.0	18.0		ug/Kg		90	56 - 131
Endosulfan I	20.0	17.1		ug/Kg		85	50 - 130
Endosulfan II	20.0	17.5		ug/Kg		87	44 - 142
Endosulfan sulfate	20.0	17.2		ug/Kg		86	47 - 129
Endrin	20.0	19.7	^	ug/Kg		98	49 - 147
Endrin aldehyde	20.0	15.0		ug/Kg		75	52 - 136
Endrin ketone	20.0	16.5		ug/Kg		83	52 - 148
gamma-BHC (Lindane)	20.0	16.4		ug/Kg		82	54 - 128
gamma-Chlordane	20.0	17.9		ug/Kg		90	52 - 131

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 580-160220/2-A
Matrix: Solid
Analysis Batch: 160707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160220

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Heptachlor			20.0	16.2		ug/Kg		81	36 - 137		
Heptachlor epoxide			20.0	17.4		ug/Kg		87	57 - 130		
Methoxychlor			20.0	16.6		ug/Kg		83	51 - 149		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*91*		*40 - 158*
Tetrachloro-m-xylene	*85*		*49 - 123*

Lab Sample ID: LCSD 580-160220/3-A
Matrix: Solid
Analysis Batch: 160707

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160220

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin			20.0	16.8		ug/Kg		84	54 - 128	2	24
alpha-BHC			20.0	15.9		ug/Kg		79	49 - 124	4	28
alpha-Chlordane			20.0	18.3		ug/Kg		91	54 - 134	2	33
beta-BHC			20.0	17.7		ug/Kg		88	51 - 129	6	32
4,4'-DDD			20.0	16.3		ug/Kg		82	48 - 137	2	41
4,4'-DDE			20.0	17.3		ug/Kg		87	53 - 128	3	40
4,4'-DDT			20.0	17.2		ug/Kg		86	43 - 144	2	47
delta-BHC			20.0	16.3		ug/Kg		81	36 - 139	2	36
Dieldrin			20.0	18.4		ug/Kg		92	56 - 131	2	32
Endosulfan I			20.0	17.6		ug/Kg		88	50 - 130	3	31
Endosulfan II			20.0	17.9		ug/Kg		89	44 - 142	2	36
Endosulfan sulfate			20.0	17.5		ug/Kg		87	47 - 129	2	43
Endrin			20.0	20.9	^	ug/Kg		105	49 - 147	6	36
Endrin aldehyde			20.0	15.4		ug/Kg		77	52 - 136	3	47
Endrin ketone			20.0	16.9		ug/Kg		84	52 - 148	2	45
gamma-BHC (Lindane)			20.0	17.4		ug/Kg		87	54 - 128	6	29
gamma-Chlordane			20.0	18.4		ug/Kg		92	52 - 131	3	32
Heptachlor			20.0	16.6		ug/Kg		83	36 - 137	2	31
Heptachlor epoxide			20.0	17.7		ug/Kg		88	57 - 130	2	31
Methoxychlor			20.0	17.1		ug/Kg		86	51 - 149	3	46

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*92*		*40 - 158*
Tetrachloro-m-xylene	*85*		*49 - 123*

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-1

Client Sample ID: LAI-B12(4)

Lab Sample ID: 580-43745-1
Date Collected: 05/23/14 08:45
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 76.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			160220	06/02/14 18:04	LHJ	TAL SEA
Total/NA	Analysis	8081A		1	160707	06/10/14 08:55	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	160023	05/29/14 12:36	CLH	TAL SEA

Client Sample ID: LAI-B12(5.5)

Lab Sample ID: 580-43745-2
Date Collected: 05/23/14 08:47
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 73.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			160220	06/02/14 18:04	LHJ	TAL SEA
Total/NA	Analysis	8081A		1	160707	06/10/14 09:11	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	160023	05/29/14 12:36	CLH	TAL SEA

Client Sample ID: LAI-B12(8)

Lab Sample ID: 580-43745-3
Date Collected: 05/23/14 08:49
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 70.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			160220	06/02/14 18:04	LHJ	TAL SEA
Total/NA	Analysis	8081A		1	160707	06/10/14 09:26	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	160023	05/29/14 12:36	CLH	TAL SEA

Client Sample ID: LAI-B12(10.5)

Lab Sample ID: 580-43745-4
Date Collected: 05/23/14 08:51
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 72.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			160220	06/02/14 18:04	LHJ	TAL SEA
Total/NA	Analysis	8081A		1	160707	06/10/14 09:42	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	160023	05/29/14 12:36	CLH	TAL SEA

Client Sample ID: LAI-B11(4)

Lab Sample ID: 580-43745-7
Date Collected: 05/23/14 09:50
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 83.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			160220	06/02/14 18:04	LHJ	TAL SEA
Total/NA	Analysis	8081A		1	160707	06/10/14 09:58	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	160023	05/29/14 12:36	CLH	TAL SEA

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-1

Client Sample ID: LAI-B11(5.5)

Lab Sample ID: 580-43745-8

Date Collected: 05/23/14 09:52
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			160220	06/02/14 18:04	LHJ	TAL SEA
Total/NA	Analysis	8081A		1	160707	06/10/14 10:13	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	160023	05/29/14 12:36	CLH	TAL SEA

Client Sample ID: LAI-B11(8)

Lab Sample ID: 580-43745-9

Date Collected: 05/23/14 09:54
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 66.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			160220	06/02/14 18:04	LHJ	TAL SEA
Total/NA	Analysis	8081A		1	160707	06/10/14 10:29	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	160023	05/29/14 12:36	CLH	TAL SEA

Client Sample ID: LAI-B11(10.5)

Lab Sample ID: 580-43745-10

Date Collected: 05/23/14 09:56
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 73.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			160220	06/02/14 18:04	LHJ	TAL SEA
Total/NA	Analysis	8081A		1	160707	06/10/14 10:45	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	160023	05/29/14 12:44	CLH	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-1

Laboratory: TestAmerica Seattle

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-15

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-43745-2
Client Project/Site: Webster Nursery, Tumwater, WA

For:
Landau & Associates, Inc.
950 Pacific Avenue, Suite 515
Tacoma, Washington 98402

Attn: Ms. Lauren Knickrehm

Authorized for release by:
6/20/2014 1:48:06 PM

Melissa Armstrong, Project Manager II
(253)248-4975
melissa.armstrong@testamericainc.com

Table of Contents

Case Narrative

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-2

Job ID: 580-43745-2

Laboratory: TestAmerica Seattle

Narrative

Receipt
The samples were received on 5/23/2014 12:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 13.4º C.

Except:
Samples LAI-B12(13) (580-43745-5), LAI-B12(15) (580-43745-6), LAI-B11(13) (580-43745-11), LAI-B11(15) (580-43745-12) were activated by the client on 6-12-14 via email.

GC Semi VOA - Method(s) 8081A
Samples LAI-B12(13) (580-43745-5), LAI-B12(15) (580-43745-6), LAI-B11(13) (580-43745-11), LAI-B11(15) (580-43745-12) were activated by the client on 6-12-14, outside their method specified holding time. As such the data has been "H" qualified and reported.

No additional analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-2

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-43745-5	LAI-B12(13)	Solid	05/23/14 08:53	05/23/14 12:05
580-43745-6	LAI-B12(15)	Solid	05/23/14 08:55	05/23/14 12:05
580-43745-11	LAI-B11(13)	Solid	05/23/14 09:58	05/23/14 12:05
580-43745-12	LAI-B11(15)	Solid	05/23/14 10:00	05/23/14 12:05

TestAmerica
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Tacoma, WA 98424
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Fax 253-922-5047
www.testamericainc.com

☐ Rush
☐ Short Hold

Chain of Custody Record

6/20/2014

Client	Client Contact	Date	Chain of Custody Number
DNR	Lauren Knickrehm	5/23/14	22692
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page**
PO Box 47030	253-926-2493	43745	Page 1 of 1
City	**State / Zip Code**	**Sampler**	**Lab Contact**
Olympia	WA 98504	SMM	SMM
Project Name and Location (State)	**Billing Contact**		
Webster Nursery, Olympia WA	John Felder		
Contract/Purchase Order/Quote No.			

Sample I.D. and Location/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	Analysis: Organochlorine Pest. 8081A	HOLD	Special Instructions/ Conditions of Receipt
LA1-B12 (4)	5/23/14	845				X	X						X		
LA1-B12 (5.5)		847				X	X						X		
LA1-B12 (8)		849				X	X						X		
LA1-B12 (10.5)		851				X	X						X		
LA1-B12 (13)		853				X	X							X	
LA1-B12 (15)		855				X	X							X	
LA1-B11 (4)		950				X	X						X		
LA1-B11 (5.5)		952				X	X						X		
LA1-B11 (8)		954				X	X						X		
LA1-B11 (10.5)		956				X	X						X		
LA1-B11 (13)		958				X	X							X	
LA1-B11 (15)		1000				X	X							X	Client drop Lg Blu/Wht wet/other IR = 13.4/13.2%

580-43745 Chain of Custody

Page 6 of 17

Cooler: ☒ Yes ☐ No Cooler Temp: _____

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 (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☒ 10 Days ☐ 15 Days ☐ Other _____

QC Requirements (Specify):

	Sign/Print	Date	Time
1. Relinquished By	Brian Mott	5/23/14	1205
1. Received By	Tom Blankinship	5/23/14	1205
2. Relinquished By			
2. Received By			
3. Relinquished By			
3. Received By			

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

TestAmerica
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TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☐ Short Hold

Chain of Custody Record

6/20/2014

Client	Client Contact	Date	Chain of Custody Number
DNR	Lauren Knickrehm	5/23/14	22692
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page**
PO Box 47030	253-926-2493	43745	Page 1 of 1
City	**State / Zip Code**	**Sampler**	**Lab Contact**
Olympia	WA 98504	SMM	SMM
Project Name and Location (State)	**Billing Contact**		
Webster Nursery, Olympia WA	John Felder		
Contract/Purchase Order/Quote No.			

Sample I.D. and Location/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	Analysis: Organochlorine Pest. 8081A	HOLD	Special Instructions/ Conditions of Receipt
LA1-B12 (4)	5/23/14	845				X	X						X		
LA1-B12 (5.5)		847				X	X						X		
LA1-B12 (8)		849				X	X						X		
LA1-B12 (10.5)		851				X	X						X		
LA1-B12 (13)		853				X	X							X	
LA1-B12 (15)		855				X	X							X	
LA1-B11 (4)		950				X	X						X		
LA1-B11 (5.5)		952				X	X						X		
LA1-B11 (8)		954				X	X						X		
LA1-B11 (10.5)		956				X	X						X		
LA1-B11 (13)		958				X	X							X	
LA1-B11 (15)		1000				X	X							X	

580-43745 Chain of Custody

Page 7 of 17

Client drop
Lg Blu/wht wet/other
IR = 13.4/13.2 °C

Cooler	Possible Hazard Identification	Sample Disposal	(A fee may be assessed if samples are retained longer than 1 month)
☒ Yes ☐ No Cooler Temp: ____	☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown	☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months	

Turn Around Time Required (business days)
☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☒ 10 Days ☐ 15 Days ☐ Other ____

QC Requirements (Specify)

1. Relinquished By Sign/Print	Date	Time	1. Received By Sign/Print	Date	Time
Brian Mott	5/23/14	1205	Tom Blankinship	5/23/14	1205
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Landau & Associates, Inc.

Job Number: 580-43745-2

Login Number: 43745

List Source: TestAmerica Seattle

List Number: 1

Creator: McDaniel, Ronald T

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not present
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	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received 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	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: LAI-B12(13)
Date Collected: 05/23/14 08:53
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-5
Matrix: Solid
Percent Solids: 75.5

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND	H	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
alpha-BHC	ND	H	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
alpha-Chlordane	ND	H	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
beta-BHC	ND	H	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
4,4'-DDD	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
4,4'-DDE	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
4,4'-DDT	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
delta-BHC	ND	H	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Dieldrin	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Endosulfan I	ND	H	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Endosulfan II	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Endosulfan sulfate	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Endrin	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Endrin aldehyde	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Endrin ketone	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
gamma-BHC (Lindane)	ND	H	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
gamma-Chlordane	**4.4**	**H**	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Heptachlor	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Heptachlor epoxide	**5.9**	**H**	1.3	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Methoxychlor	ND	H	13	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1
Toxaphene	ND	H	130	ug/Kg	☼	06/13/14 09:31	06/19/14 12:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*83*		*40 - 158*	*06/13/14 09:31*	*06/19/14 12:49*	*1*
Tetrachloro-m-xylene	*57*		*49 - 123*	*06/13/14 09:31*	*06/19/14 12:49*	*1*

Client Sample ID: LAI-B12(15)
Date Collected: 05/23/14 08:55
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-6
Matrix: Solid
Percent Solids: 76.6

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
alpha-BHC	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
alpha-Chlordane	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
beta-BHC	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
4,4'-DDD	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
4,4'-DDE	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
4,4'-DDT	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
delta-BHC	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Dieldrin	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Endosulfan I	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Endosulfan II	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Endosulfan sulfate	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Endrin	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Endrin aldehyde	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Endrin ketone	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
gamma-BHC (Lindane)	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
gamma-Chlordane	**4.7**	**H**	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Heptachlor	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Heptachlor epoxide	**4.6**	**H**	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1
Methoxychlor	ND	H	12	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: LAI-B12(15)
Date Collected: 05/23/14 08:55
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-6
Matrix: Solid
Percent Solids: 76.6

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Toxaphene	ND	H	120	ug/Kg	☼	06/13/14 09:31	06/19/14 13:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*77*		*40 - 158*	*06/13/14 09:31*	*06/19/14 13:58*	*1*
Tetrachloro-m-xylene	*53*		*49 - 123*	*06/13/14 09:31*	*06/19/14 13:58*	*1*

Client Sample ID: LAI-B11(13)
Date Collected: 05/23/14 09:58
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-11
Matrix: Solid
Percent Solids: 68.4

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND	H	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
alpha-BHC	ND	H	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
alpha-Chlordane	ND	H	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
beta-BHC	ND	H	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
4,4'-DDD	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
4,4'-DDE	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
4,4'-DDT	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
delta-BHC	ND	H	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Dieldrin	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Endosulfan I	ND	H	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Endosulfan II	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Endosulfan sulfate	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Endrin	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Endrin aldehyde	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Endrin ketone	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
gamma-BHC (Lindane)	ND	H	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
gamma-Chlordane	**7.4**	**H**	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Heptachlor	ND	H	2.9	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Heptachlor epoxide	**2.3**	**H**	1.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Methoxychlor	ND	H	15	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1
Toxaphene	ND	H	150	ug/Kg	☼	06/13/14 09:31	06/19/14 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*83*		*40 - 158*	*06/13/14 09:31*	*06/19/14 14:21*	*1*
Tetrachloro-m-xylene	*62*		*49 - 123*	*06/13/14 09:31*	*06/19/14 14:21*	*1*

Client Sample ID: LAI-B11(15)
Date Collected: 05/23/14 10:00
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-12
Matrix: Solid
Percent Solids: 76.6

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
alpha-BHC	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
alpha-Chlordane	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
beta-BHC	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
4,4'-DDD	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
4,4'-DDE	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
4,4'-DDT	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
delta-BHC	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Dieldrin	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Endosulfan I	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-2

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: LAI-B11(15)
Date Collected: 05/23/14 10:00
Date Received: 05/23/14 12:05

Lab Sample ID: 580-43745-12
Matrix: Solid
Percent Solids: 76.6

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan II	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Endosulfan sulfate	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Endrin	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Endrin aldehyde	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Endrin ketone	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
gamma-BHC (Lindane)	ND	H	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
gamma-Chlordane	**4.3**	**H**	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Heptachlor	ND	H	2.5	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Heptachlor epoxide	**2.2**	**H**	1.2	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Methoxychlor	ND	H	12	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1
Toxaphene	ND	H	120	ug/Kg	☼	06/13/14 09:31	06/19/14 14:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*89*		*40 - 158*	*06/13/14 09:31*	*06/19/14 14:44*	*1*
Tetrachloro-m-xylene	*65*		*49 - 123*	*06/13/14 09:31*	*06/19/14 14:44*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 580-161043/1-A
Matrix: Solid
Analysis Batch: 161608

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 161043

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
alpha-BHC	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
alpha-Chlordane	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
beta-BHC	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
4,4'-DDD	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
4,4'-DDE	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
4,4'-DDT	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
delta-BHC	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Dieldrin	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Endosulfan I	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Endosulfan II	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Endosulfan sulfate	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Endrin	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Endrin aldehyde	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Endrin ketone	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
gamma-BHC (Lindane)	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
gamma-Chlordane	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Heptachlor	ND		2.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Heptachlor epoxide	ND		1.0	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Methoxychlor	ND		10	ug/Kg		06/13/14 09:31	06/19/14 11:40	1
Toxaphene	ND		100	ug/Kg		06/13/14 09:31	06/19/14 11:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*96*		*40 - 158*	*06/13/14 09:31*	*06/19/14 11:40*	*1*
Tetrachloro-m-xylene	*73*		*49 - 123*	*06/13/14 09:31*	*06/19/14 11:40*	*1*

Lab Sample ID: LCS 580-161043/2-A
Matrix: Solid
Analysis Batch: 161608

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 161043

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	20.0	16.7		ug/Kg		83	54 - 128
alpha-BHC	20.0	14.9		ug/Kg		74	49 - 124
alpha-Chlordane	20.0	16.0		ug/Kg		80	54 - 134
beta-BHC	20.0	15.2		ug/Kg		76	51 - 129
4,4'-DDD	20.0	17.2		ug/Kg		86	48 - 137
4,4'-DDE	20.0	17.6		ug/Kg		88	53 - 128
4,4'-DDT	20.0	17.1		ug/Kg		85	43 - 144
delta-BHC	20.0	18.3		ug/Kg		91	36 - 139
Dieldrin	20.0	18.3		ug/Kg		91	56 - 131
Endosulfan I	20.0	20.5		ug/Kg		103	50 - 130
Endosulfan II	20.0	18.7		ug/Kg		94	44 - 142
Endosulfan sulfate	20.0	18.5		ug/Kg		93	47 - 129
Endrin	20.0	17.3		ug/Kg		87	49 - 147
Endrin aldehyde	20.0	17.6		ug/Kg		88	52 - 136
Endrin ketone	20.0	17.5		ug/Kg		87	52 - 148
gamma-BHC (Lindane)	20.0	14.9		ug/Kg		75	54 - 128
gamma-Chlordane	20.0	16.7		ug/Kg		84	52 - 131

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 580-161043/2-A
Matrix: Solid
Analysis Batch: 161608

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 161043

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Heptachlor			20.0	16.8		ug/Kg		84	36 - 137		
Heptachlor epoxide			20.0	17.7		ug/Kg		89	57 - 130		
Methoxychlor			20.0	17.9		ug/Kg		89	51 - 149		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*93*		*40 - 158*
Tetrachloro-m-xylene	*74*		*49 - 123*

Lab Sample ID: LCSD 580-161043/3-A
Matrix: Solid
Analysis Batch: 161608

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 161043

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin			20.0	14.6		ug/Kg		73	54 - 128	13	24
alpha-BHC			20.0	13.0		ug/Kg		65	49 - 124	14	28
alpha-Chlordane			20.0	14.5		ug/Kg		73	54 - 134	10	33
beta-BHC			20.0	13.5		ug/Kg		68	51 - 129	12	32
4,4'-DDD			20.0	15.4		ug/Kg		77	48 - 137	11	41
4,4'-DDE			20.0	15.8		ug/Kg		79	53 - 128	11	40
4,4'-DDT			20.0	15.3		ug/Kg		77	43 - 144	11	47
delta-BHC			20.0	15.8		ug/Kg		79	36 - 139	14	36
Dieldrin			20.0	16.5		ug/Kg		82	56 - 131	11	32
Endosulfan I			20.0	18.4		ug/Kg		92	50 - 130	11	31
Endosulfan II			20.0	17.0		ug/Kg		85	44 - 142	10	36
Endosulfan sulfate			20.0	16.6		ug/Kg		83	47 - 129	11	43
Endrin			20.0	16.2		ug/Kg		81	49 - 147	7	36
Endrin aldehyde			20.0	16.1		ug/Kg		80	52 - 136	9	47
Endrin ketone			20.0	15.5		ug/Kg		78	52 - 148	12	45
gamma-BHC (Lindane)			20.0	13.1		ug/Kg		65	54 - 128	13	29
gamma-Chlordane			20.0	15.1		ug/Kg		75	52 - 131	10	32
Heptachlor			20.0	14.8		ug/Kg		74	36 - 137	13	31
Heptachlor epoxide			20.0	16.0		ug/Kg		80	57 - 130	10	31
Methoxychlor			20.0	16.2		ug/Kg		81	51 - 149	10	46

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*86*		*40 - 158*
Tetrachloro-m-xylene	*66*		*49 - 123*

Lab Sample ID: 580-43745-5 MS
Matrix: Solid
Analysis Batch: 161608

Client Sample ID: LAI-B12(13)
Prep Type: Total/NA
Prep Batch: 161043

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aldrin	ND	H	25.3	18.7		ug/Kg	☼	74	54 - 128		
alpha-BHC	ND	H	25.3	16.7		ug/Kg	☼	66	49 - 124		
alpha-Chlordane	ND	H	25.3	18.1		ug/Kg	☼	72	54 - 134		
beta-BHC	ND	H	25.3	16.8		ug/Kg	☼	66	51 - 129		
4,4'-DDD	ND	H	25.3	19.1		ug/Kg	☼	75	48 - 137		

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 580-43745-5 MS
Matrix: Solid
Analysis Batch: 161608

Client Sample ID: LAI-B12(13)
Prep Type: Total/NA
Prep Batch: 161043

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDE	ND	H	25.3	21.4		ug/Kg	☼	79	53 - 128
4,4'-DDT	ND	H	25.3	18.9		ug/Kg	☼	74	43 - 144
delta-BHC	ND	H	25.3	19.2		ug/Kg	☼	76	36 - 139
Dieldrin	ND	H	25.3	20.5		ug/Kg	☼	81	56 - 131
Endosulfan I	ND	H	25.3	22.2		ug/Kg	☼	88	50 - 130
Endosulfan II	ND	H	25.3	20.4		ug/Kg	☼	81	44 - 142
Endosulfan sulfate	ND	H	25.3	20.8		ug/Kg	☼	82	47 - 129
Endrin	ND	H	25.3	20.2		ug/Kg	☼	80	49 - 147
Endrin aldehyde	ND	H	25.3	20.3		ug/Kg	☼	80	52 - 136
Endrin ketone	ND	H	25.3	19.6		ug/Kg	☼	78	52 - 148
gamma-BHC (Lindane)	ND	H	25.3	16.8		ug/Kg	☼	66	54 - 128
gamma-Chlordane	4.4	H	25.3	24.8		ug/Kg	☼	81	52 - 131
Heptachlor	ND	H	25.3	18.9		ug/Kg	☼	74	36 - 137
Heptachlor epoxide	5.9	H	25.3	27.6		ug/Kg	☼	85	57 - 130
Methoxychlor	ND	H	25.3	19.8		ug/Kg	☼	78	51 - 149

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*84*		*40 - 158*
Tetrachloro-m-xylene	*64*		*49 - 123*

Lab Sample ID: 580-43745-5 MSD
Matrix: Solid
Analysis Batch: 161608

Client Sample ID: LAI-B12(13)
Prep Type: Total/NA
Prep Batch: 161043

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	ND	H	25.9	18.7		ug/Kg	☼	72	54 - 128	0	30
alpha-BHC	ND	H	25.9	16.3		ug/Kg	☼	63	49 - 124	2	30
alpha-Chlordane	ND	H	25.9	17.9		ug/Kg	☼	69	54 - 134	2	30
beta-BHC	ND	H	25.9	16.8		ug/Kg	☼	65	51 - 129	0	30
4,4'-DDD	ND	H	25.9	18.6		ug/Kg	☼	72	48 - 137	2	30
4,4'-DDE	ND	H	25.9	20.8		ug/Kg	☼	75	53 - 128	3	30
4,4'-DDT	ND	H	25.9	18.1		ug/Kg	☼	70	43 - 144	4	30
delta-BHC	ND	H	25.9	19.3		ug/Kg	☼	74	36 - 139	1	30
Dieldrin	ND	H	25.9	20.2		ug/Kg	☼	78	56 - 131	2	30
Endosulfan I	ND	H	25.9	22.2		ug/Kg	☼	86	50 - 130	0	30
Endosulfan II	ND	H	25.9	20.7		ug/Kg	☼	80	44 - 142	2	30
Endosulfan sulfate	ND	H	25.9	20.3		ug/Kg	☼	78	47 - 129	3	30
Endrin	ND	H	25.9	19.5		ug/Kg	☼	75	49 - 147	3	30
Endrin aldehyde	ND	H	25.9	19.6		ug/Kg	☼	76	52 - 136	3	30
Endrin ketone	ND	H	25.9	19.7		ug/Kg	☼	76	52 - 148	0	30
gamma-BHC (Lindane)	ND	H	25.9	16.4		ug/Kg	☼	63	54 - 128	3	30
gamma-Chlordane	4.4	H	25.9	23.1		ug/Kg	☼	73	52 - 131	7	30
Heptachlor	ND	H	25.9	18.4		ug/Kg	☼	71	36 - 137	3	30
Heptachlor epoxide	5.9	H	25.9	25.9		ug/Kg	☼	77	57 - 130	6	30
Methoxychlor	ND	H	25.9	19.4		ug/Kg	☼	75	51 - 149	2	30

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-2

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 580-43745-5 MSD
Matrix: Solid
Analysis Batch: 161608

Client Sample ID: LAI-B12(13)
Prep Type: Total/NA
Prep Batch: 161043

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl	85		40 - 158
Tetrachloro-m-xylene	62		49 - 123

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-2

Client Sample ID: LAI-B12(13)

Lab Sample ID: 580-43745-5
Date Collected: 05/23/14 08:53
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 75.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			161043	06/13/14 09:31	RMB	TAL SEA
Total/NA	Analysis	8081A		1	161608	06/19/14 12:49	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	161057	06/13/14 10:06	CLH	TAL SEA

Client Sample ID: LAI-B12(15)

Lab Sample ID: 580-43745-6
Date Collected: 05/23/14 08:55
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 76.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			161043	06/13/14 09:31	RMB	TAL SEA
Total/NA	Analysis	8081A		1	161608	06/19/14 13:58	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	161057	06/13/14 10:06	CLH	TAL SEA

Client Sample ID: LAI-B11(13)

Lab Sample ID: 580-43745-11
Date Collected: 05/23/14 09:58
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 68.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			161043	06/13/14 09:31	RMB	TAL SEA
Total/NA	Analysis	8081A		1	161608	06/19/14 14:21	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	161057	06/13/14 10:16	CLH	TAL SEA

Client Sample ID: LAI-B11(15)

Lab Sample ID: 580-43745-12
Date Collected: 05/23/14 10:00
Matrix: Solid
Date Received: 05/23/14 12:05
Percent Solids: 76.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			161043	06/13/14 09:31	RMB	TAL SEA
Total/NA	Analysis	8081A		1	161608	06/19/14 14:44	CGM	TAL SEA
Total/NA	Analysis	D 2216		1	161057	06/13/14 10:16	CLH	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: Landau & Associates, Inc.
Project/Site: Webster Nursery, Tumwater, WA

TestAmerica Job ID: 580-43745-2

Laboratory: TestAmerica Seattle

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C553	02-17-15

ATTACHMENT 3

Boring Logs

Soil Classification System

MAJOR DIVISIONS			GRAPHIC SYMBOL	USCS LETTER SYMBOL[1]	TYPICAL DESCRIPTIONS [2][3]
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines
				GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sand; sand/silt mixture(s)
				SC	Clayey sand; sand/clay mixture(s)
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity
				CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay
				OL	Organic silt; organic, silty clay of low plasticity
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic silt; micaceous or diatomaceous fine sand
				CH	Inorganic clay of high plasticity; fat clay
				OH	Organic clay of medium to high plasticity; organic silt
	HIGHLY ORGANIC SOIL			PT	Peat; humus; swamp soil with high organic content

OTHER MATERIALS	GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT		AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK		RK	Rock (See Rock Classification)
WOOD		WD	Wood, lumber, wood chips
DEBRIS		DB	Construction debris, garbage

Notes:
1. USCS letter symbols correspond to symbols used by the Unified Soil Classification System and ASTM classification methods. Dual letter symbols (e.g., SP-SM for sand or gravel) indicate soil with an estimated 5-15% fines. Multiple letter symbols (e.g., ML/CL) indicate borderline or multiple soil classifications.
2. Soil descriptions are based on the general approach presented in the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the Standard Test Method for Classification of Soils for Engineering Purposes, as outlined in ASTM D 2487.
3. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent:	> 50%	"GRAVEL," "SAND," "SILT," "CLAY," etc.
Secondary Constituents:	> 30% and ≤ 50%	"very gravelly," "very sandy," "very silty," etc.
	> 15% and ≤ 30%	"gravelly," "sandy," "silty," etc.
Additional Constituents:	> 5% and ≤ 15%	"with gravel," "with sand," "with silt," etc.
	≤ 5%	"with trace gravel," "with trace sand," "with trace silt," etc., or not noted.

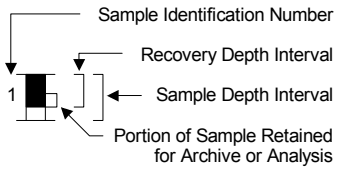
4. Soil density or consistency descriptions are based on judgement using a combination of sampler penetration blow counts, drilling or excavating conditions, field tests, and laboratory tests, as appropriate.

Drilling and Sampling Key

SAMPLER TYPE

Code	Description
a	3.25-inch O.D., 2.42-inch I.D. Split Spoon
b	2.00-inch O.D., 1.50-inch I.D. Split Spoon
c	Shelby Tube
d	Grab Sample
e	Single-Tube Core Barrel
f	Double-Tube Core Barrel
g	2.50-inch O.D., 2.00-inch I.D. WSDOT
h	3.00-inch O.D., 2.375-inch I.D. Mod. California
i	Other - See text if applicable
1	300-lb Hammer, 30-inch Drop
2	140-lb Hammer, 30-inch Drop
3	Pushed
4	Vibrocore (Rotosonic/Geoprobe)
5	Other - See text if applicable

SAMPLE NUMBER & INTERVAL



Field and Lab Test Data

Code	Description
PP = 1.0	Pocket Penetrometer, tsf
TV = 0.5	Torvane, tsf
PID = 100	Photoionization Detector VOC screening, ppm
W = 10	Moisture Content, %
D = 120	Dry Density, pcf
-200 = 60	Material smaller than No. 200 sieve, %
GS	Grain Size - See separate figure for data
AL	Atterberg Limits - See separate figure for data
GT	Other Geotechnical Testing
CA	Chemical Analysis

Groundwater

▽ Approximate water level at time of drilling (ATD)

▼ Approximate water level at time other than ATD

LANDAU ASSOCIATES

Webster Nursery
Olympia, Washington

Soil Classification System and Key

Figure 3-1

LAI- B11

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Holocene Drilling Inc.	Water Level
0						SP SM	Brown SAND with organics and gravel (medium dense, moist) **(FILL)**	
							Brown, silty, fine SAND with organics (medium dense, moist) **(ALLUVIUM)**	
2	1	3						
						SP	Gray brown, silty, fine to medium SAND with organics (medium dense, moist)	
4							**Soil Sample: LAI-B11(4)**	
							Soil Sample: LAI-B11(5.5)	▽ ATD
6	2	3				SM	Light brown silty, fine to medium SAND (medium dense, wet)	
8							- Grades to very silty, fine SAND	
							Soil Sample: LAI-B11(8)	
10	3	3					**Soil Sample: LAI-B11(10.5)**	
						ML	Light brown, sandy SILT (medium stiff, wet)	
12							**Soil Sample: LAI-B11(13)**	
14	4	3				SM	- Grades gray brown, without sand	
							Very silty, fine to medium SAND (medium dense, wet)	
						SP	Gray, fine to medium SAND (medium dense, wet)	
16							**Soil Sample: LAI-B11(15)**	

Boring Completed 05/23/14
Total Depth of Boring = 16.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

774006.01 7/30/14 Y:\774006.010\T\BORING LOGS\0774006.010.013.GPJ SOIL BORING LOG

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Log of Boring LAI- B11

Figure
3-2

LAI- B12

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Holocene Drilling Inc.	Water Level
0						SP-SM	Dark brown SAND with silt and organics (medium dense, moist) **(FILL?)**	
							- Grades gray brown, gravelly, without organics	▽ ATD
2	1	3				SM	Light brown, silty, fine SAND (medium dense, wet) **(ALLUVIUM)**	
4							**Soil Sample: LAI-B12(4)** - Grades very silty	
6	2	3					**Soil Sample: LAI-B12(5.5)**	
8							**Soil Sample: LAI-B12(8)**	
						ML	Light brown, sandy SILT (medium stiff, wet)	
10	3	3					**Soil Sample: LAI-B12(10.5)**	
12						SP	Gray brown, fine to medium SAND (medium dense, wet)	
							Soil Sample: LAI-B12(13)	
14	4	3						
							Soil Sample: LAI-B12(15)	
						ML	Gray SILT (soft to medium stiff, wet)	
16								

Boring Completed 05/23/14
Total Depth of Boring = 16.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

774006.01 7/30/14 Y:\774006.010\T\BORING LOGS\0774006.010.013.GPJ SOIL BORING LOG

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Log of Boring LAI- B12

Figure
3-3