LANDAU ASSOCIATES

SUB-SLAB SOIL INVESTIGATION

Webster Nursery
9805 Blomberg Street
Tumwater, Washington

October 8, 2024

Prepared for

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Sub-slab Soil Investigation
Webster Nursery
9805 Blomberg Street Southwest
Tumwater, Washington

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LIST OF ABBREVIATIONS AND ACRONYMS

2,4-D	2,4-dichlorophenoxyacetic acid
µg/kg	micrograms per kilogram
Analytical Resources	Analytical Resources, LLC
bgs	below ground surface
CAP	Cleanup Action Plan
DI	deionized
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EIM	Environmental Information Management
EPA	US Environmental Protection Agency
Eurofins	Eurofins Lancaster Laboratories Environment Testing, LLC
ft	foot/feet
HE	heptachlor epoxide
Landau	Landau Associates, Inc.
RCRA	Resource Conservation and Recovery Act
Site	DNR Webster Nursery
UST	underground storage tank

1.0 INTRODUCTION

This report was prepared on behalf of the Washington State Department of Natural Resources (DNR) by Landau Associates, Inc. (Landau) and presents the results of the sub-slab soil investigation at the DNR Webster Nursery site, a former pesticide-storage warehouse in Tumwater, Washington (Site; Figure 1). The Site is associated with past releases of organochlorine pesticides to soil and groundwater. Constituents of potential concern include the organochlorine pesticides heptachlor and heptachlor epoxide (HE; a breakdown product of heptachlor), and the chlorinated herbicide 2,4-dichlorophenoxyacetic acid (2,4-D).

To date, remedial activities at the Site have primarily focused on the area located to the south of the pesticide storage warehouse building. Remedial action excavation and disposal of HE-contaminated soil was completed in August 2018. A summary of the remedial action was provided in a Cleanup Action Completion Report (Landau 2020) and the extent of the 2018 remedial excavation is shown on Figure 2. The Washington State Department of Ecology (Ecology)-approved Compliance Monitoring Plan was finalized on April 14, 2023 (Landau 2023a) and groundwater confirmation monitoring and cleanup is complete (Landau 2023b). In April 2024, a sub-slab soil investigation was completed as outlined in the Ecology-approved work plan to confirm that no contaminated soil remains at the Site below the southern end of the pesticide storage warehouse near the former floor drain and former underground storage tank (UST) which were suspected of being a potential source area for subsurface contamination (Ecology 2023; Landau 2024).

1.1 Site Description

Webster Nursery is an operating forest nursery located at 9805 Blomberg Street Southwest, in Thurston County, Washington, approximately 0.5 miles west of Interstate 5 (Figure 1). The cleanup area of the Site consists of an area of soil and groundwater at the nursery that was formerly affected by a historical release of organochlorine pesticides from a UST located south of the former pesticide storage warehouse. The Site is accessible from Blomberg Street Southwest. The extent of the Site is shown on Figure 2.

1.2 Site Background

A concrete UST was installed south of the former pesticide storage warehouse in 1978. 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, pesticide contamination (primarily heptachlor) was confirmed in soil and groundwater, and a remedial excavation was completed in 1996. According to the 2001 Cleanup Action Plan (CAP), approximately 70 cubic yards of soil contaminated with heptachlor, HE, chlordanes, and chlorinated herbicides were removed for disposal (Ecology 2001). The excavation depth was approximately 7 feet (ft) below ground surface (bgs). The results of confirmation soil samples collected after termination of excavation activities indicated soil contamination was left in place.

An assessment of a subfloor drain associated with the pesticide storage operations was conducted in 1998 (Tetra Tech 1999). The purpose of the investigation was to determine whether the floor drains or associated piping resulted in releases beneath the building. The approximate location of the former drains and piping are shown in Figure 2. Soil samples were collected from 10 locations beneath the building slab, at locations directly adjacent to the floor drains and at additional locations along the piping alignment, at depths between 1 and 3.75 ft. Groundwater at the Site ranges seasonally from approximately 2.5 to 12.5 bgs.

Soil samples were analyzed for organochlorine pesticides and chlorinated herbicides. Sample depths, analytical methods, and both 1998 and current cleanup levels are presented in Table 1. Results indicate that organochlorine pesticides, including heptachlor and HE, were not detected above the laboratory reporting limit of 1.00 micrograms per kilogram (µg/kg) in any samples.[1] This reporting limit represents a value up to twice the current Model Toxics Control Act Method B saturated soil cleanup levels for protection of groundwater (i.e., 0.95 µg/kg for heptachlor and 0.5 µg/kg for HE), but is at least an order of magnitude below the current vadose zone cleanup levels (i.e., 19 µg/kg for heptachlor and 9.9 µg/kg for HE). Groundwater data collected from proximate monitoring well SW-9R following the remedial excavation activities completed in 2018 identified no detections of heptachlor or HE in groundwater. This data empirically demonstrates that groundwater is not impacted by heptachlor or HE in saturated soils in the southern end of the warehouse.

During the 1998 assessment, chlorinated herbicides 2,4-D and dicamba were each detected in one of the two sample intervals at sampling location SS-01 at concentrations above the laboratory reporting limit. As shown in Table 1, the detected concentrations were well below the 1998 cleanup levels. The detected dicamba concentration was also well below the current vadose and saturated soil cleanup levels protective of groundwater and, therefore, dicamba is not considered a contaminant of concern. The detected 2,4-D concentration was well below the current vadose soil cleanup level protective of groundwater and only marginally above the saturated soil cleanup level. The depth of both samples collected at SS-01 were in vadose zone soils located above the seasonally high groundwater table at the Site. However, Ecology suggested that these two chlorinated herbicide detections could indicate a release in the area surrounding SS-01. Therefore, DNR prepared an Ecology-approved work plan to complete sub-slab soil sampling in the vicinity of SS-01 to verify whether heptachlor, HE and 2,4-D are present above levels protective of groundwater (Landau 2024). This report was prepared to document the results of this investigation.

1.3 Regulatory Status

In October 1998, Ecology and DNR entered into Agreed Order Number DE 98TC-S175 to conduct remedial investigation work at the Site (Ecology 1999). The Agreed Order was updated in 2001 (Number DE 00 TCPSR-295; Ecology 2001a) and was updated again in 2016 (Number DE 13181; Ecology 2016). In

[1] Note that the reporting limit for other pesticides (i.e., Aldrin, alpha- and beta-BHC, and dieldrin) was above the current saturated soil cleanup level; however, none of these constituents have been detected in soil at the Site and are not considered contaminants of concern.

2001, an environmental covenant was recorded for the Site to restrict the use of groundwater at the Site (Ecology 2001b).

Remedial actions have been implemented as outlined in the Remedial Action Work Plan (Landau 2017), the final Compliance Monitoring Plan (Landau 2023a), and as required by the Agreed Order. Groundwater confirmational monitoring and cleanup is complete (Landau 2023b) and concurrence from Ecology is pending.

2.0 ADDITIONAL SUBSURFACE INVESTIGATIONS

The following sections describe the sub-slab soil investigation activities completed at the Site. Work was completed in accordance with the Ecology-approved work plan and Site-specific Health and Safety Plan (Landau 2024).

2.1 Pre-Field Activities

Prior to initiation of drilling activities, the locations of each proposed boring were checked in the field to locate above and belowground utilities and physical limitations in the investigation area. Facility drawings were reviewed to locate non-conductible utilities in the warehouse. A public utility locate service was contacted to locate public underground utilities in the Site vicinity and a private utility locate service was contracted to locate underground utilities near the proposed borings. Each of the three boring locations were determined to be clear of any utilities prior to drilling.

2.2 Sub-Slab Soil Sampling

Sub-slab soil sampling was completed on April 23, 2024 using direct-push drilling technology to collect soil cores from beneath the southern end of the warehouse building proximate to the location where historical chlorinated herbicide concentrations indicated that a release may have occurred. Three soil borings (LAI-1, LAI-2, and LAI-3) were advanced along the former drain pipe alignment proximate to the historical sampling locations SS-01 and SS-02 and south of SS-01 (directly north of the 2018 remedial excavation area) to determine whether contaminants of potential concern were released beneath the slab either via the drain, pipes, or at the USTs. The locations of the three soil borings are shown in Figure 2. A descriptive log of each soil boring was prepared, and soil conditions were logged in the field by a licensed geologist in general accordance with the Unified Soils Classification System. Soil boring logs are included in Appendix A.

Three soil samples were collected from each of the three boring locations, and one blind field duplicate sample was collected from boring LAI-3. Samples were obtained from one-foot intervals (at approximate depths of 2 to 3 ft bgs, 3 to 4 ft bgs, and 4 to 5 ft bgs) at each boring. The deepest interval was located directly above the water table which was measured at monitoring well SW-9R prior to drilling. The water level depth and elevation at SW-9R is shown in Table 2.

Soil samples were stored on ice and shipped under proper chain-of-custody procedures to Analytical Resources, LLC (Analytical Resources) in Tukwila, Washington for heptachlor and HE analysis by US Environmental Protection Agency (EPA) Method 8081B, and to Eurofins Lancaster Laboratories Environment Testing, LLC (Eurofins) in Lancaster, Pennsylvania for 2,4-D analysis by EPA Method 8151A.

2.3 Residual Waste Management

Soil cuttings from the borings and rinse water from equipment decontamination were segregated and contained in separate 55-gallon stainless steel drums that were stored at the Site until receipt of waste characterization data. One composite soil sample from the soil cuttings drum was collected and submitted to Analytical Resources for heptachlor and HE analysis by EPA Method 8081B and Resource

Conservation and Recovery Act (RCRA) 8 metals[2] analysis by Methods 6020B and 7471B, and to Eurofins for 2,4-D analysis by EPA Method 8151A. The composite sample results were used to develop a waste disposal profile. Both drums were removed from the Site by DH Environmental, Inc. on May 20, 2024 for proper disposal at Lafarge North America in Seattle, Washington.

2.4 Cultural Resources

A cultural resources review and Tribal consultation were completed for the Site prior to any ground disturbing activities in accordance with Governor's Executive Order 21-02. The cultural resources concurrence letter issued by the Department of Archaeology and Historic Preservation dated April 29, 2024, is included in Appendix B. Tribal consultation under the directive was completed by DNR for the Site in February 2024. DNR followed the Inadvertent Discovery Plan for ground disturbing activities and a DNR archeologist was present on site to monitor subsurface material during the sub-slab soil investigation.

2.5 Environmental Information Management Submittal

An Environmental Information Management (EIM) submittal is required for soil data generated for the investigation. The sub-slab soil results will be submitted for input into Ecology's EIM system by July 31, 2024.

[2] RCRA 8 metals consist of arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

3.0 SUBSURFACE INVESTIGATION RESULTS

Laboratory analytical data for the nine soil samples collected during the sub-slab soil investigation indicate that heptachlor, HE, and 2,4-D were not detected at concentrations above the laboratory's method detection limits at any of the three boring locations. The laboratory's method detection limits are below the 2016 site-specific cleanup levels outlined in the CAP, as well as the cleanup levels listed in Ecology's 2024 Cleanup Levels and Risk Calculation Spreadsheet for vadose zone soil protective of groundwater and saturated zone soil protective of groundwater. The sub-slab soil analytical data is shown in Table 3. Laboratory reports are included in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The findings of the sub-slab soil investigation indicate that soil beneath the warehouse building does not have detectible concentrations of any of the constituents of concern for the Site. Based on this soil data and previous soil and groundwater data collected from the Site after completion of prior remedial actions, there is no soil or groundwater remaining at the Site that was impacted from the original release of contaminants at the Site and cleanup of the Site is complete.

Per the Agreed Order, DNR respectfully requests that Ecology evaluate the results of the sub-slab investigation and the overall success of the soil cleanup and issue a letter indicating that 1) the monitoring requirements for the Site have been satisfied and Site groundwater monitoring wells can be decommissioned, 2) cleanup of the Site is complete and no further action is required, and 3) no environmental covenant is warranted for the area of the warehouse building. Understanding that Ecology is in the process of updating the existing Environmental Covenant, the covenant should be revised to reflect the results of the current Site conditions, which would result in restrictions being limited to soil in the area south of the former excavation and removing restrictions on groundwater withdrawals.

5.0 USE OF THIS REPORT

This report has been prepared for the exclusive use of Washington State Department of Natural Resources and Washington State Department of Ecology for specific application to the Webster Nursery Site. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau, shall be at the user's sole risk. Landau warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. Landau makes no other warranty, either express or implied.

6.0 REFERENCES

Ecology. 1999. Agreed Order Number DE 98TC-S175. Washington State Department of Natural Resources. Washington State Department of Ecology. July 1.

Ecology. 2001a. Agreed Order No. DE 00 TCPSR-295. Washington State Department of Ecology. January 8.

Ecology. 2001b. Restrictive Covenant - Dept. of Natural Resources/Webster Nursery. Dept. of Ecology Agreed Order No. DE 00 TCPSR - 295. Washington State Department of Natural Resources. January 26.

Ecology. 2016. Agreed Order No. DE 13181 In the Matter of Remedial Action by Washington State Department of Natural Resources. Washington State Department of Ecology. August 9.

Ecology. 2023. Letter Re: Compliance Monitoring Plan Approval. WA DNR Webster Nursery. 9805 Blomberg St. SW, Tumwater, Thurston County, WA 98512. Facility/Site No: 8786341. Cleanup Site ID No.: 3380. June 14.

Ecology. 2024. Cleanup Levels and Risk Calculations (CLARC). Washington State Department of Ecology. February.

Landau. 2017. Remedial Action Work Plan. Webster Nursery. 9805 Blomberg Street SW, Tumwater, Washington. Prepared for Washington State Department of Natural Resources. October 31.

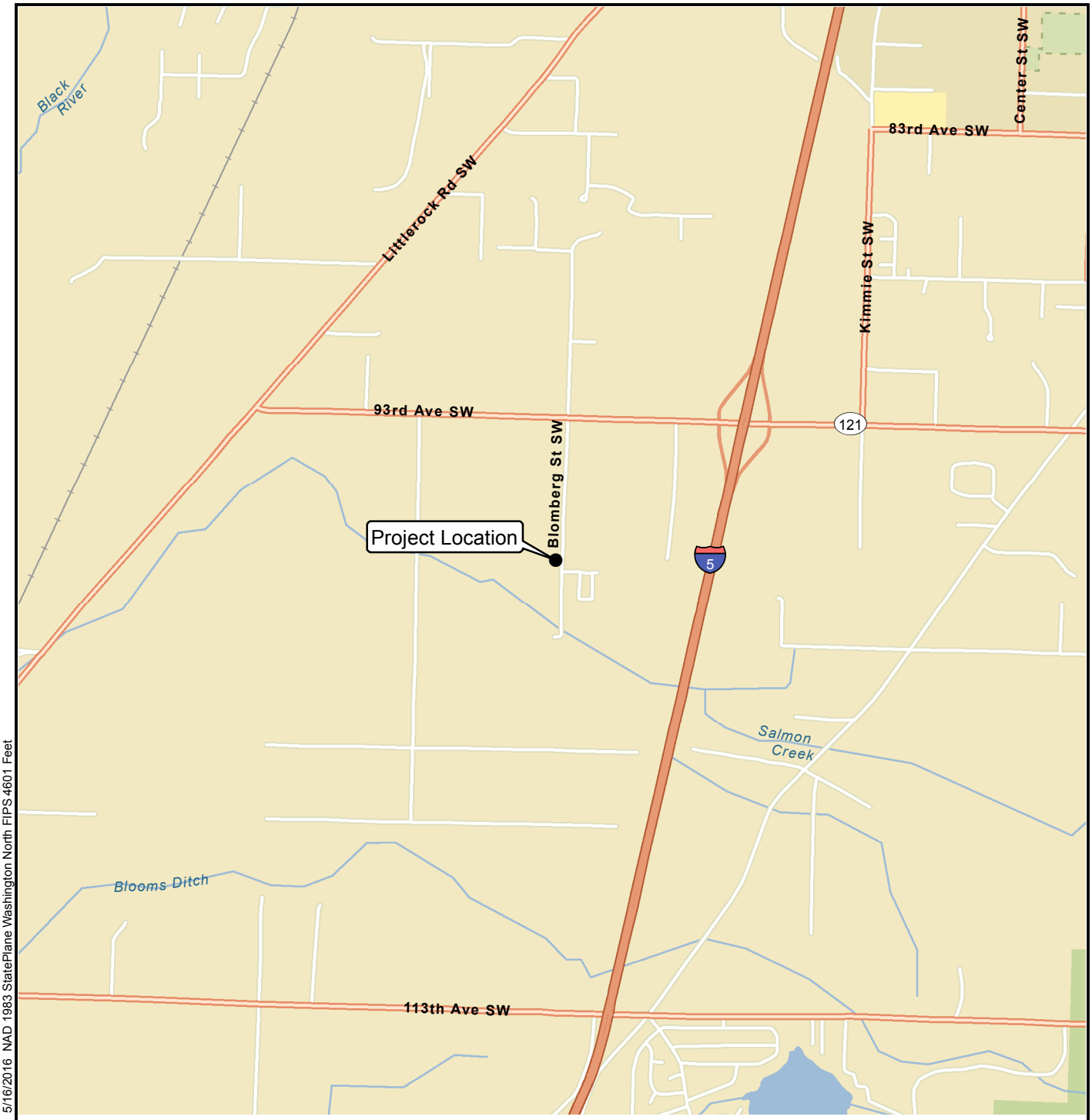
Landau. 2020. Final: Cleanup Action Completion Report, Washington State Department of Natural Resources Webster Nursery, Tumwater, Washington. Landau Associates, Inc. May 29.

Landau. 2023a. Draft Technical Memorandum: Compliance Monitoring Plan, Webster Nursery Site, Site Identification 3380, Tumwater, Washington. Landau Associates, Inc. April 14.

Landau. 2023b. Technical Memorandum: Third Quarter 2023 Groundwater Monitoring Results, Webster Nursery Site, Site Identification 3380, Tumwater, Washington. Landau Associates, Inc. November 2.

Landau. 2024. Sub-Slab Soil Investigation Work Plan. Webster Nursery. 9805 Blomberg Street, Tumwater, Washington. Prepared for Washington State Department of Natural Resources. April 4.

Tetra Tech. 1999. Work Plan: Pesticide Storage Warehouse Remedial Investigation/Feasibility Study, Webster Nursery, Olympia, Washington. Tetra Tech, Inc. January.



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Data Source: Esri 2012

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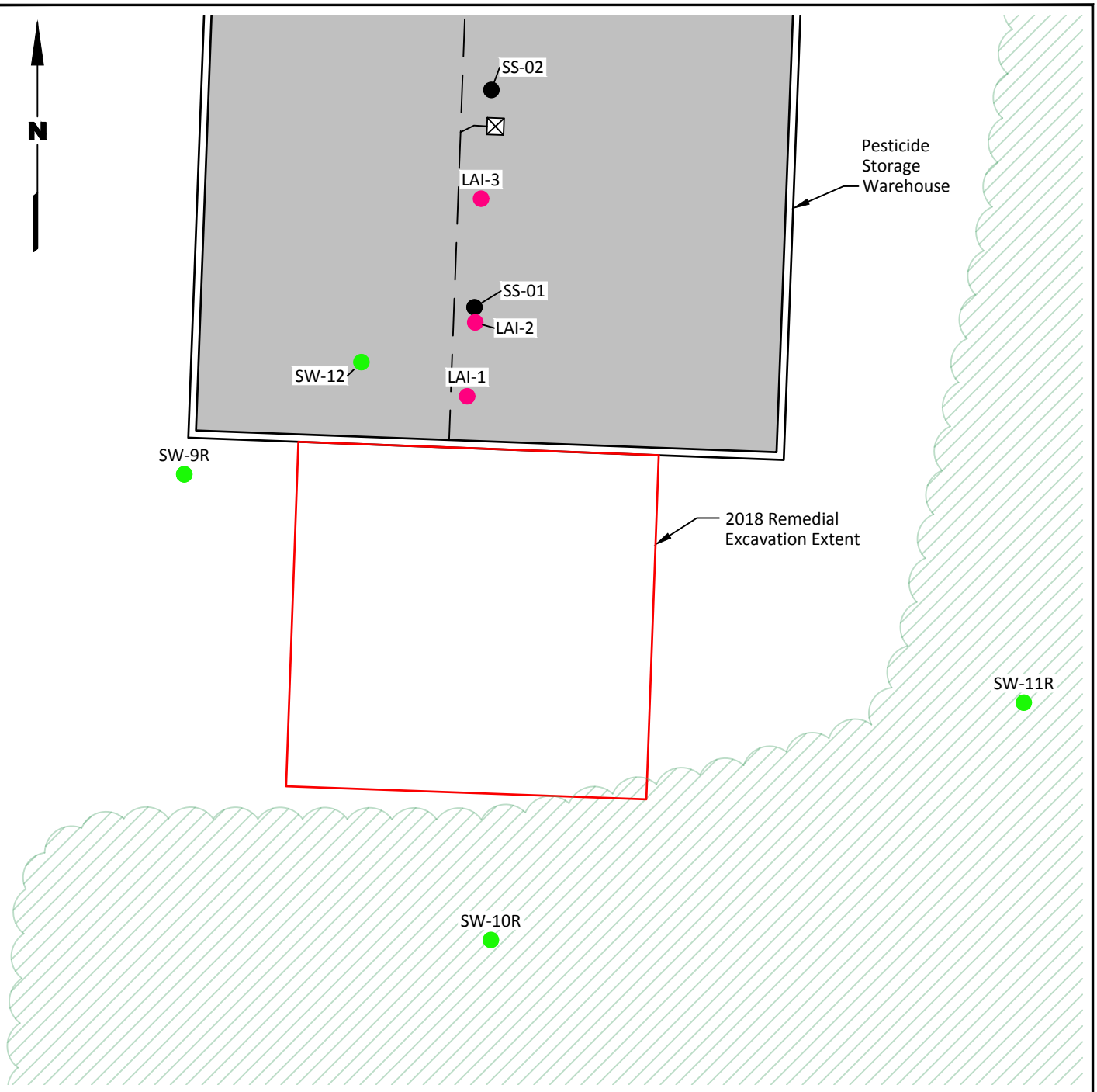
Webster Nursery Site Tumwater, Washington	**Vicinity Map**	Figure 1



Legend

- Sub-Slab Soil Sample Location
- Monitoring Well Location
- 1998 Sub-slab Soil Sample
- Former Drain
- Former Piping
- Tree Canopy Area

Note

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

0 10 20

Scale in Feet

Source: Tetra Tech, 1999

Webster Nursery Site Tumwater, Washington	**Site Plan**	Figure 2

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Landau Associates | G:\Projects\774\006\040\048\SitePlan.dwg | 5/8/2024 7:12 PM | bpadgett

Table 1
Subfloor Drainage Soil Sample Results - April 1998
Webster Nursery
Tumwater, Washington

Sample Identification and Depth:				PSW-SS-01-2.0	PSW-SS-01-3.75	PSW-SS-02-2.0	PSW-SS-03-2.0	PSW-SS-04-2.0	PSW-SS-05-2.5	PSW-SS-06-2.5	PSW-SS-07-2.0	PSW-SS-08-1.5	PSW-09-1.5	PSW-SS-10-1.0	PSW-SS-11-1.5
		2023 Soil Protective of Groundwater													
	1998 CUL	Vadose (a)	Saturated	2 ft	3.75 ft	2 ft	2 ft	2 ft	2.5 ft	2.5 ft	2 ft	1.5 ft	1.5 ft	1 ft	1.5 ft
Organochlorine Pesticides (µg/kg)															
Aldrin	0.515	2.5	0.13	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
alpha-BHC	N/A	0.55	0.028	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
beta-BHC	N/A	2.3	0.12	0.900 U	0.900 U	0.900 U	0.900 U	0.900 U	0.900 U	0.900 U	0.900 U	0.900 U	0.900 U	0.900 U	0.900 U
delta-BHC	N/A			0.600 U	0.600 U	0.600 U	0.600 U	0.600 U	0.600 U	0.600 U	0.600 U	0.600 U	0.600 U	0.600 U	0.600 U
gamma-BHC	6.73			1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Technical chlordane	6.73	1,300	64	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
alpha-chlordane	6.73	5,400	270	0.800 U	0.800 U	0.800 U	0.800 U	0.800 U	0.800 U	0.800 U	0.800 U	0.800 U	0.800 U	0.800 U	0.800 U
gamma-chlordane	6.73	5,400	270	0.700 U	0.700 U	0.700 U	0.700 U	0.700 U	0.700 U	0.700 U	0.700 U	0.700 U	0.700 U	0.700 U	0.700 U
4,4-DDD	36.5	340	17	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
4,4-DDE	25.7	220	11	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
4,4-DDT	25.7	3,500	170	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Dieldrin	0.547	2.8	0.14	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Endosulfan I	9,600			1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Endosulfan II	9,600			2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Endosulfan sulfate	N/A			1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Endrin	480	440	22	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Endrin aldehyde	N/A	N/A	N/A	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Heptachlor	1.94	19	0.95	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Heptachlor epoxide	0.962	9.9	0.5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methoxychlor	8,000	64,000	3,200	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U
Toxaphene	7.95	1,500	76	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Chlorinated Herbicides (µg/kg)															
2,4-D	800,000	320	22	5.0 U	**22.8 J**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dicamba	2,400,000	2,200	150	**5.86**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

Notes:

Bold text indicates detected analyte**.**

(a) All soil samples were collected from the vadose zone, and are therefore compared to the soil protective of groundwater vadose zone cleanup level.

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

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

Abbreviations and Acronyms:

µg/kg = microgram per kilogram

CUL = cleanup level

ft = feet

MTCA = Model Toxics Control Act

N/A = not available

Table 2
Groundwater Level Measurements
Webster Nursery
Tumwater, Washington

Well ID	Top of Casing Elevation (ft)	Depth to Water (ft bgs)	Groundwater Elevation (ft)
SW-9R	191.62	5.85	185.77

Notes:

Groundwater elevation data was measured April 23, 2024.

Abbreviations:

bgs = below ground surface
ft = feet
ID = identification

Table 3
Sub-Slab Soil Sample Results - April 2024
Webster Nursery
Tumwater, Washington

Sample Location	Field Sample ID	Soil Depth Interval (ft)	Sample Date	Laboratory SDG	Sample Type	Pesticides (µg/kg; SW-846 8081B)		Herbicides (µg/kg; SW-846 8151A)
						Heptachlor	Heptachlor Epoxide	2,4-D
Site-Specific Cleanup Levels for Soil Protective of Groundwater Vadose Zone:						37.8	80.2	320[a]
Cleanup Levels for Soil Protective of Groundwater Saturated Zone:						0.95	0.5	22
LAI-1	LAI-1 (2-3)	2 - 3	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	15 UJ
	LAI-1 (3-4)	3 - 4	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	15 UJ
	LAI-1 (4-5)	4 - 5	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	15 UJ
LAI-2	LAI-2 (2-3)	2 - 3	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	15 UJ
	LAI-2 (3-4)	3 - 4	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	15 UJ
	LAI-2 (4-5)	4 - 5	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	14 UJ
LAI-3	LAI-3 (2-3)	2 - 3	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	15 UJ
	DUP-1-20240423	2 - 3	4/23/2024	24D0542/410-169140-1	FD	0.05 U	0.17 U	14 UJ
	LAI-3 (3-4)	3 - 4	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	15 UJ
	LAI-3 (4-5)	4 - 5	4/23/2024	24D0542/410-169140-1	N	0.05 U	0.17 U	14 UJ

Notes:

(a) = There is no site-specific cleanup level listed for 2, 4-D in the CAP, therefore, the cleanup level presented for soil protective of groundwater in the vadoze zone is from Ecology's Cleanup Levels and Risk Calculation table (2024).

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

UJ = The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Analytical Resources, LLC and Eurofins Lancaster Laboratories Encironment Testing, LLC laboratory results are reported down to the method detection limit.

Abbreviations and Acronyms:

2,4-D = 2,4-dichlorophenoxyacetic acid

FD = field duplicate

ft = feet

µg/kg = micrograms per kilogram

N = primary sample

SDG = sample delivery group

APPENDIX A

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%	- "trace gravel," "trace sand," "trace silt," etc., or not noted.

LANDAU ASSOCIATES

Webster Nursery
Olympia, Washington

Soil Classification System and Key

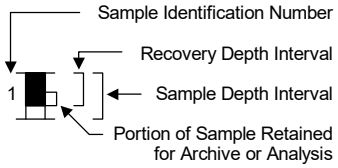
Figure A-1

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	Other - See text if applicable
1	300-lb Hammer, 30-inch Drop
2	140-lb Hammer, 30-inch Drop
3	Pushed
4	Rotosonic
5	Air Rotary (Rock)
6	Wash Rotary (Rock)
7	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
VST	Vane Shear Test
GT	Other Geotechnical Testing
CA	Chemical Analysis

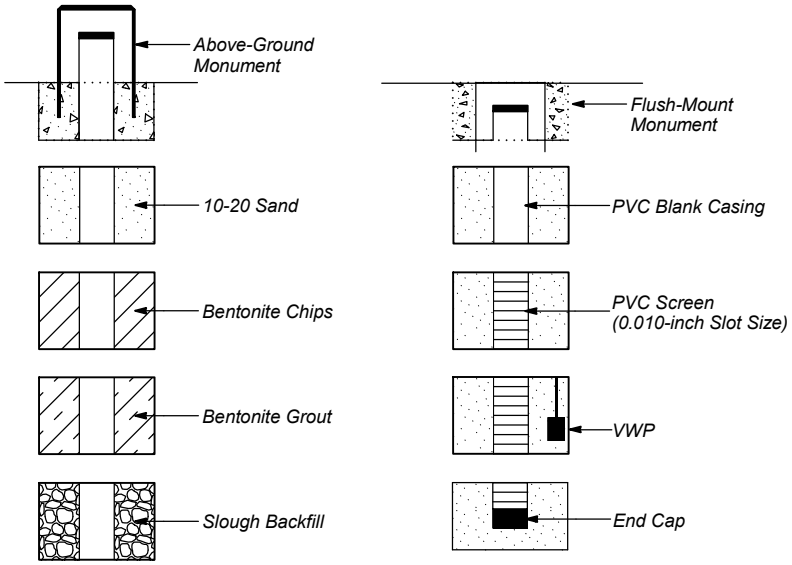
Groundwater

▽ Approximate water elevation at time of drilling (ATD).

▼ Approximate water elevation at other time(s). When multiple water levels are obtained other than ATD, only a representative range is shown. See text for additional information.

Note: Groundwater levels can fluctuate due to precipitation, seasonal conditions, and other factors.

Well Log Graphics



LANDAU ASSOCIATES

Webster Nursery
Olympia, Washington

Soil Classification System and Key

Figure A-1 (2 of 2)

LAI-1

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						AC	Asphalt	
						SP-SM	Brown, fine SAND with silt; no odor (loose, dry to damp) **(FILL)**	
2		d3					**Soil Sample: LAI-1(2-3)**	
		d3					**Soil Sample: LAI-1(3-4)** Becomes light olive brown	
4		d3					**Soil Sample: LAI-1(4-5)**	
							Beomes wet	▽ ATD
6								
8						SP	Light olive brown, medium SAND with trace silt; no odor (loose, wet) **(RECESSIONAL OUTWASH)**	
10								
12								

Boring Completed 04/23/24
Total Depth of Boring = 10.0 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.

774006.04 6/27/24 N:\PROJECTS\0774006.GPJ SOIL BORING LOG

LANDAU ASSOCIATES

Webster Nursery
Olympia, Washington

Log of Boring LAI-1

Figure
A-2

LAI-2

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						AC	Asphalt	
						SP-SM	Brown, fine SAND with silt; no odor (loose, dry to damp) **(FILL)**	
2		d3					**Soil Sample: LAI-2(2-3)** Charcoal-like fragments	
		d3					**Soil Sample: LAI-2(3-4)** Becomes light olive brown	
4		d3					**Soil Sample: LAI-2(4-5)** Becomes wet	▽ ATD
6								
8						SP	Light olive brown, medium SAND with trace silt; no odor (loose, wet) **(RECESSIONAL OUTWASH)**	
						ML	Light olive brown SILT with trace fine sand; no odor (soft, wet)	
						SP-SM	Light olive brown, medium SAND with silt; no odor (loose, wet)	
10								
12								

Boring Completed 04/23/24
Total Depth of Boring = 10.0 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.

774006.04 6/27/24 N:\PROJECTS\0774006.GPJ SOIL BORING LOG

LANDAU ASSOCIATES

Webster Nursery
Olympia, Washington

Log of Boring LAI-2

Figure
A-3

LAI-3

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						AC	Asphalt	
						SP-SM	Brown, fine SAND with silt; no odor (loose, dry to damp) **(FILL)**	
2		d3					**Soil Sample: LAI-3(2-3)** Charcoal-like fragments	
		d3					**Soil Sample: LAI-3(3-4)** Becomes light olive brown	
4		d3					**Soil Sample: LAI-3(4-5)** Becomes wet	▽ ATD
6								
8						SP	Light olive brown, medium SAND with trace silt; no odor (loose, wet) **(RECESSIONAL OUTWASH)**	
						ML	Light olive brown SILT with trace fine sand; no odor (soft, wet)	
						SP-SM	Light olive brown, medium SAND with silt; no odor (loose, wet)	
10								

Boring Completed 04/23/24
Total Depth of Boring = 10.0 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.

774006.04 6/27/24 N:\PROJECTS\0774006.GPJ SOIL BORING LOG

LANDAU ASSOCIATES

Webster Nursery
Olympia, Washington

Log of Boring LAI-3

Figure
A-4

APPENDIX B

Cultural Resource Impact

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

April 29, 2024

Dr. Louis Fortin, Ph.D.
Forest Resources Division
DNR
PO Box 47014
Olympia, Washington 98504-7014

RE: DNR Webster Nursery Sub-Slab Project
Log No.: 2024-04-02875-DNR

Dear Dr. Fortin:

Thank you for contacting our department pursuant to Executive Order 21-02. We have reviewed the information you provided for the proposed *DNR Webster Nursery Sub-Slab Project* at the DNR Webster Forest Nursery Facility, Tumwater, Thurston Washington.

We concur with your recommendations of no cultural resource impact with the stipulations for professional archaeological monitoring and for an unanticipated find plan. Please provide the monitoring report when available.

Please provide any correspondence or comments from concerned tribes or other parties that you receive as you consult under EX 21-02.

In the event archaeological or historic materials are encountered during project activities, work in the immediate vicinity must stop, the area secured, and the concerned tribe's cultural staff, cultural committee, and this department notified as detailed in DNR PO14-016 and PO 06-001.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in compliance with Executive Order 21-02. Should additional information become available, our assessment may be revised, including information regarding historic properties that have not yet been identified. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 890-2615
email: *rob.whitlam@dahp.wa.gov*

APPENDIX C

Laboratory Reports

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

29 July 2024

Katie Gauglitz
Landau Associates, Inc. - Tacoma
2107 South C Street
Tacoma, WA 98402

RE: Webster Nursery (774006.040.048)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
24D0542	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

24D0542

LANDAU ASSOCIATES

Chain-of-Custody Record

- [ ] North Seattle (206) 631-8660
- [x] Tacoma (253) 926-2493
- [ ] Olympia (360) 791-3178
- [ ] Spokane (509) 327-9737
- [ ] Portland (503) 542-1080
- [ ] _____

Date 4/23/24

Page 1 of 1

Turnaround Time: (Standard) Accelerated

Project Name Webster Nursery Project No. 774006.040.048

Project Location/Event Tumwater, WA

Sampler's Name NDD

Project Contact Katie Ganglitz KGanglitz@landauinc.com

Send Results To KGanglitz@landauinc.com
Data@landauinc.com

Special Handling Requirements:

Shipment Method:

Stored on ice: (Yes) No

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters: Heptachlor/HE by 8081B	RCRA 8 Metals by 6020 and 7471	Observations/Comments
LA1-1(2-3)	4/23/24	1020	SOIL	1	X		
LA1-1(3-4)		1025			X		
LA1-1(4-5)		1030			X		
LA1-2(2-3)		1120			X		
LA1-2(3-4)		1125			X		
LA1-2(4-5)		1130			X		
LA1-3(2-3)		1240			X		
LA1-3(3-4)		1245			X		
LA1-3(4-5)		1250			X		
DUP-1		-			X		
IDW-20240423		1340		2	X	X	

Observations/Comments

- ___ Allow water samples to settle, collect aliquot from clear portion ☐
- ___ NWTPH-Dx - Acid wash cleanup ☐
  - Silica gel cleanup ☐
- ___ Dissolved metal samples were field filtered

Other _____

Relinquished by	Received by	Relinquished by	Received by
Signature NFTh	Signature	Signature	Signature
Printed Name NATE DORFNER	Printed Name	Printed Name	Printed Name
Company Landau	Company	Company	Company
Date 4/23/24 Time 1705	Date 04/23/24 Time 1705	Date Time	Date Time

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative 10/2018

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LAI-1(2-3)	24D0542-01	Solid	23-Apr-2024 10:20	23-Apr-2024 17:05
LAI-1(3-4)	24D0542-02	Solid	23-Apr-2024 10:25	23-Apr-2024 17:05
LAI-1(4-5)	24D0542-03	Solid	23-Apr-2024 10:30	23-Apr-2024 17:05
LAI-2 (2-3)	24D0542-04	Solid	23-Apr-2024 11:20	23-Apr-2024 17:05
LAI-2 (3-4)	24D0542-05	Solid	23-Apr-2024 11:25	23-Apr-2024 17:05
LAI-2 (4-5)	24D0542-06	Solid	23-Apr-2024 11:30	23-Apr-2024 17:05
LAI-3 (2-3)	24D0542-07	Solid	23-Apr-2024 12:40	23-Apr-2024 17:05
LAI-3 (3-4)	24D0542-08	Solid	23-Apr-2024 12:45	23-Apr-2024 17:05
LAI-3 (4-5)	24D0542-09	Solid	23-Apr-2024 12:50	23-Apr-2024 17:05
DUP-1	24D0542-10	Solid	23-Apr-2024 00:00	23-Apr-2024 17:05
IDW-20240423	24D0542-11	Solid	23-Apr-2024 13:40	23-Apr-2024 17:05

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Work Order Case Narrative

Pesticides - EPA Method SW8081B

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits with the exception of the internal standard 1-Bromo-2-Nitrobenzene to fall outside the -50 to +100 range on both columns for the intial analysis of sample 24D0542- 11. Internal standard recoveries were in control for the diluted analysis.

The surrogate percent recoveries were within control limits with the exception of surrogates in 24D0542- 11. In the diluted run as well as the undiluted analysis. Both runs were reported.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Per the client request the data was evaluated to the MDL/DL. Samples that contain positive results betwen the MDL/ DL and RL have been flagged with a "J" qualifer.

Total Metals - EPA Method 6020B and 7471B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Per the client request the data was evaluated to the MDL/DL. Samples that contain positive results betwen the MDL/ DL and RL have been flagged with a "J" qualifer.

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 4/24/2024 11:27:25AM

WORK ORDER

24D0542

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. - Tacoma
Project Manager: Kelly Bottem

Project: Webster Nursery
Project Number: 774006.040.048

Report To:
Landau Associates, Inc. - Tacoma
Sierra Mott
2107 South C Street
Tacoma, WA 98402
Phone: (253) 926-2493
Fax: (253) 926-2531

Invoice To:
Landau Associates, Inc. - Tacoma
Sierra Mott
2107 South C Street
Tacoma, WA 98402
Phone :(253) 926-2493
Fax: (253) 926-2531

Date Due: 08-May-2024 18:00 (10 day TAT)

Received By: Matthew Daniel
Date Received: 23-Apr-2024 17:05

Logged In By: Emma Stewart
Date Logged In: 24-Apr-2024 11:10

Samples Received at: 9.7°C

Intact, properly signed and dated custody seals attached to outside of cooler(s)	No	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	No
Was sufficient ice used (if appropriate)	No	All bottles sealed in individual plastic bags	Yes
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	No	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

Analysis	Due	TAT	Expires	Comments

WORK ORDER

24D0542

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. - Tacoma **Project Manager:** Kelly Bottem

Project: Webster Nursery **Project Number:** 774006.040.048

Analysis	Due	TAT	Expires	Comments
24D0542-01 LAI-1(2-3) [Solid] Sampled 23-Apr-2024 10:20 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-02 LAI-1(3-4) [Solid] Sampled 23-Apr-2024 10:25 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-03 LAI-1(4-5) [Solid] Sampled 23-Apr-2024 10:30 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-04 LAI-2 (2-3) [Solid] Sampled 23-Apr-2024 11:20 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-05 LAI-2 (3-4) [Solid] Sampled 23-Apr-2024 11:25 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-06 LAI-2 (4-5) [Solid] Sampled 23-Apr-2024 11:30 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	

WORK ORDER

24D0542

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. - Tacoma **Project Manager:** Kelly Bottem

Project: Webster Nursery **Project Number:** 774006.040.048

Analysis	Due	TAT	Expires	Comments
24D0542-07 LAI-3 (2-3) [Solid] Sampled 23-Apr-2024 12:40 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-08 LAI-3 (3-4) [Solid] Sampled 23-Apr-2024 12:45 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-09 LAI-3 (4-5) [Solid] Sampled 23-Apr-2024 12:50 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-10 DUP-1 [Solid] Sampled 23-Apr-2024 00:00 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	
24D0542-11 IDW-20240423 [Solid] Sampled 23-Apr-2024 13:40 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass WM, Amber, 8 oz *B = Glass WM, Amber, 8 oz*				
8081B Pest (PSDDA)	08-May-2024 15:00	10	07-May-2024 23:59	For solids only
Metals, RCRA (6020) add Hg	08-May-2024 15:00	10	20-Oct-2024 13:40	
Solids, Total, Dried at 103 -105 °C, Soli	08-May-2024 15:00	10	21-May-2024 23:59	
Solids, Total, PSEP (Extractions)	08-May-2024 15:00	10	07-May-2024 23:59	

Analysis groups included in this work order

Metals, RCRA (6020) add Hg

Met 6020A - Se UCT	Met 6020A - Pb	Met 6020A - Cr	Met 6020A - Cd UCT
Met 6020A - Ba	Met 6020A - As UCT	Met 6020A - Ag	

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Webster Nursery/Landau Project Name: Webster Nursery

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 24D0542 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 9.7°C

Time 1705

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 509708

Cooler Accepted by: MD Date: 04/23/24 Time: 1705

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: E.S. Date: 4/24/24 Time: 10:20 Labels checked by: _____

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 24D0542

Cooler#: 1 **Temperature(°C):** 9.7°C

Sample ID	Bottle Count	Bottle Type
Samples received above 6°C		

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Completed by: MD Date: 04/23/24 Time: 1705

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-1(2-3)
24D0542-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 10:20
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 11:11

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 24D0542-01 A 01
Preparation Batch: BME0031 — Sample Size: 15.67 g (wet) — Dry Weight:12.64 g
Prepared: 05/02/2024 — Final Volume: 2.5 mL — % Solids: 80.69

Sample Cleanup: Cleanup Method: Sulfur — Extract ID:24D0542-01 A 01
Cleanup Batch: CME0092 — Initial Volume: 2500 uL
Cleaned: 08-May-2024 — Final Volume: 2500 uL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.49	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.49	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*104*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*122*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*99.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*92.2*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-1(3-4)

24D0542-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 10:25
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 12:06

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-02 A 01
	Preparation Batch: BME0031	Sample Size: 15.87 g (wet)	Dry Weight:12.54 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 79.03
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-02 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.50	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*96.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*115*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*88.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*85.1*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-1(4-5)

24D0542-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 10:30
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 13:02

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-03 A 01
	Preparation Batch: BME0031	Sample Size: 15.39 g (wet)	Dry Weight:12.64 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 82.16
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-03 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.49	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.49	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*105*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*117*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*96.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*92.6*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-2 (2-3)

24D0542-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 11:20
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 13:20

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-04 A 01
	Preparation Batch: BME0031	Sample Size: 15.26 g (wet)	Dry Weight:12.54 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 82.19
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-04 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.50	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*91.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*118*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*87.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*86.4*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-2 (3-4)

24D0542-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 11:25
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 13:39

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-05 A 01
	Preparation Batch: BME0031	Sample Size: 15.72 g (wet)	Dry Weight:12.75 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 81.08
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-05 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.49	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.49	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*105*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*119*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*96.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*91.7*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-2 (4-5)

24D0542-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 11:30
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 13:57

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-06 A 01
	Preparation Batch: BME0031	Sample Size: 15.04 g (wet)	Dry Weight:12.53 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 83.32
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-06 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.50	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*101*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*112*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*98.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*96.0*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-3 (2-3)

24D0542-07 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 12:40
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 14:15

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-07 A 01
	Preparation Batch: BME0031	Sample Size: 15.25 g (wet)	Dry Weight:12.56 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 82.35
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-07 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.50	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*101*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*122*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*92.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*87.7*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-3 (3-4)

24D0542-08 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 12:45
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 14:34

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-08 A 01
	Preparation Batch: BME0031	Sample Size: 15.42 g (wet)	Dry Weight:12.55 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 81.36
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-08 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.50	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*103*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*117*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*95.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*91.3*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

LAI-3 (4-5)

24D0542-09 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 12:50
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 15:11

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-09 A 01
	Preparation Batch: BME0031	Sample Size: 15.27 g (wet)	Dry Weight:12.65 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 82.83
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-09 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.49	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.49	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*93.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*106*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*98.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*77.2*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

DUP-1

24D0542-10 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 00:00
Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 15:29

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-10 A 01
	Preparation Batch: BME0031	Sample Size: 15.26 g (wet)	Dry Weight:12.54 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 82.15
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-10 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.17	0.50	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*91.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*105*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*77.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*70.0*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

IDW-20240423

24D0542-11 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 13:40

Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 14:52

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-11 A 01
	Preparation Batch: BME0031	Sample Size: 15.87 g (wet)	Dry Weight:12.57 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 79.19
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-11 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	1	0.05	0.50	0.42	ug/kg	J
Heptachlor Epoxide	1024-57-3	1	0.17	0.50	0.88	ug/kg	
Surrogate: Decachlorobiphenyl				*30-160 %*	*133*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*132*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*229*	*%*	*
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*215*	*%*	*

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

IDW-20240423

24D0542-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 04/23/2024 13:40

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/03/2024 14:11

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 24D0542-11 B 01

Preparation Batch: BMD0748 — Sample Size: 1.046 g (wet) — Dry Weight:0.82 g

Prepared: 04/28/2024 — Final Volume: 50 mL — % Solids: 78.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	3.26	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.10	mg/kg	J
Selenium	7782-49-2	20	0.22	0.61	1.39	mg/kg	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

IDW-20240423

24D0542-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 04/23/2024 13:40

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/03/2024 14:11

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 24D0542-11 B 01

Preparation Batch: BMD0748 — Sample Size: 1.046 g (wet) — Dry Weight:0.82 g

Prepared: 04/28/2024 — Final Volume: 50 mL — % Solids: 78.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.14	0.61	84.4	mg/kg	
Chromium	7440-47-3	50	0.79	1.52	20.3	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	3.81	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.06	mg/kg	J

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

IDW-20240423

24D0542-11 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 04/23/2024 13:40

Instrument: HYDRA Analyst: ML — Analyzed: 04/30/2024 12:51

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 24D0542-11 B

Preparation Batch: BMD0727 — Sample Size: 0.22 g (wet) — Dry Weight:0.17 g

Prepared: 04/29/2024 — Final Volume: 50 mL — % Solids: 78.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00607	0.0289	0.0379	mg/kg	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

IDW-20240423

24D0542-11RE1 (Solid)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 04/23/2024 13:40

Instrument: ECD6 Analyst: RT — Analyzed: 05/09/2024 10:53

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24D0542-11RE1 A 01
	Preparation Batch: BME0031	Sample Size: 15.87 g (wet)	Dry Weight:12.57 g
	Prepared: 05/02/2024	Final Volume: 2.5 mL	% Solids: 79.19
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24D0542-11RE1 A 01
	Cleanup Batch: CME0092	Initial Volume: 2500 uL	
	Cleaned: 08-May-2024	Final Volume: 2500 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Heptachlor	76-44-8	10	0.46	4.97	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	10	1.69	4.97	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*30-160 %*	*214*	*%*	*
Surrogate: Decachlorobiphenyl [2C]				*30-160 %*	*158*	*%*	
Surrogate: Tetrachlorometaxylene				*30-160 %*	*120*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*30-160 %*	*101*	*%*	

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BME0031 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0031-BLK1)	Prepared: 02-May-2024 Analyzed: 09-May-2024 09:39										
Heptachlor	ND	0.05	0.50	ug/kg							U
Heptachlor Epoxide	ND	0.17	0.50	ug/kg							U
Surrogate: Decachlorobiphenyl	10.9			ug/kg	*8.00*		*136*	*30-160*			
Surrogate: Decachlorobiphenyl [2C]	10.9			ug/kg	*8.00*		*137*	*30-160*			
Surrogate: Tetrachlorometaxylene	9.72			ug/kg	*8.00*		*122*	*30-160*			
Surrogate: Tetrachlorometaxylene [2C]	9.28			ug/kg	*8.00*		*116*	*30-160*			

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BME0031 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0031-BS1)				Prepared: 02-May-2024 Analyzed: 09-May-2024 09:58							
Heptachlor	4.24	0.05	0.50	ug/kg	4.00		106	26-120			
Heptachlor Epoxide	4.47	0.17	0.50	ug/kg	4.00		112	26-120			
Surrogate: Decachlorobiphenyl	10.3			ug/kg	*8.00*		*129*	*30-160*			
Surrogate: Decachlorobiphenyl [2C]	10.7			ug/kg	*8.00*		*133*	*30-160*			
Surrogate: Tetrachlorometaxylene	8.90			ug/kg	*8.00*		*111*	*30-160*			
Surrogate: Tetrachlorometaxylene [2C]	8.64			ug/kg	*8.00*		*108*	*30-160*			

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BME0031 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0031-BSD1)				Prepared: 02-May-2024 Analyzed: 09-May-2024 10:16							
Heptachlor	4.16	0.05	0.50	ug/kg	4.00		104	26-120	1.90	30	
Heptachlor Epoxide	4.39	0.17	0.50	ug/kg	4.00		110	26-120	1.88	30	
Surrogate: Decachlorobiphenyl	9.14			ug/kg	*8.00*		*114*	*30-160*			
Surrogate: Decachlorobiphenyl [2C]	9.60			ug/kg	*8.00*		*120*	*30-160*			
Surrogate: Tetrachlorometaxylene	9.05			ug/kg	*8.00*		*113*	*30-160*			
Surrogate: Tetrachlorometaxylene [2C]	8.54			ug/kg	*8.00*		*107*	*30-160*			

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BME0031 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0031-MS1)	**Source: 24D0542-01**			Prepared: 02-May-2024 Analyzed: 09-May-2024 11:30							
Heptachlor	2.69	0.05	0.49	ug/kg	3.95	ND	68.1	26-120			
Heptachlor Epoxide	2.94	0.17	0.49	ug/kg	3.95	ND	74.4	26-120			
Surrogate: Decachlorobiphenyl	7.02			ug/kg	*7.91*		*88.8*	*30-160*			
Surrogate: Decachlorobiphenyl [2C]	8.60			ug/kg	*7.91*		*109*	*30-160*			
Surrogate: Tetrachlorometaxylene	6.88			ug/kg	*7.91*		*87.0*	*30-160*			
Surrogate: Tetrachlorometaxylene [2C]	6.37			ug/kg	*7.91*		*80.5*	*30-160*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BME0031 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0031-MSD1)	**Source: 24D0542-01**			Prepared: 02-May-2024 Analyzed: 09-May-2024 11:48							
Heptachlor	2.79	0.05	0.49	ug/kg	3.95	ND	70.6	26-120	3.89	30	
Heptachlor Epoxide	3.12	0.17	0.49	ug/kg	3.95	ND	79.0	26-120	5.91	30	
Surrogate: Decachlorobiphenyl	8.13			ug/kg	*7.91*		*103*	*30-160*			
Surrogate: Decachlorobiphenyl [2C]	9.41			ug/kg	*7.91*		*119*	*30-160*			
Surrogate: Tetrachlorometaxylene	7.56			ug/kg	*7.91*		*95.5*	*30-160*			
Surrogate: Tetrachlorometaxylene [2C]	7.25			ug/kg	*7.91*		*91.7*	*30-160*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMD0727 - EPA 7471B

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMD0727-BLK1)				Prepared: 29-Apr-2024 Analyzed: 30-Apr-2024 11:46							
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BMD0727-BS1)				Prepared: 29-Apr-2024 Analyzed: 30-Apr-2024 11:48							
Mercury	0.481	0.00525	0.0250	mg/kg	0.500		96.2	80-120			

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMD0748 - EPA 6020B

Instrument: ICPMS2 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMD0748-BLK1)					Prepared: 28-Apr-2024 Analyzed: 29-Apr-2024 16:58							
Barium	135	ND	0.11	0.50	mg/kg							U
Lead	208	ND	0.05	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.04	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Selenium	78	ND	0.18	0.50	mg/kg							U
Blank (BMD0748-BLK2)					Prepared: 28-Apr-2024 Analyzed: 06-May-2024 17:41							
Chromium	52	ND	0.26	0.50	mg/kg							U
LCS (BMD0748-BS1)					Prepared: 28-Apr-2024 Analyzed: 29-Apr-2024 17:08							
Barium	135	23.9	0.11	0.50	mg/kg	25.0		95.5	80-120			
Lead	208	24.4	0.05	0.10	mg/kg	25.0		97.8	80-120			
Silver	107	23.2	0.02	0.20	mg/kg	25.0		93.0	80-120			
Arsenic	75a	22.6	0.04	0.20	mg/kg	25.0		90.4	80-120			
Cadmium	111	23.8	0.03	0.10	mg/kg	25.0		95.3	80-120			
Selenium	78	67.9	0.18	0.50	mg/kg	80.0		84.9	80-120			
LCS (BMD0748-BS2)					Prepared: 28-Apr-2024 Analyzed: 06-May-2024 17:51							
Chromium	52	24.2	0.26	0.50	mg/kg	25.0		96.8	80-120			

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Selenium-78	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Solid	
Heptachlor	DoD-ELAP,NELAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024

Landau Associates, Inc. - Tacoma	Project: Webster Nursery	
2107 South C Street	Project Number: 774006.040.048	**Reported:**
Tacoma WA, 98402	Project Manager: Katie Gauglitz	29-Jul-2024 10:50

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Katie Gauglitz
Landau & Associates, Inc.
2107 South C Street
Tacoma, Washington 98402

Generated 7/25/2024 10:35:45 AM Revision 2

JOB DESCRIPTION

Chlorinated Herbicides Analysis

JOB NUMBER

410-169140-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

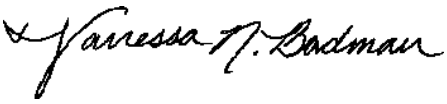
See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Revision 2

Authorized for release by
Vanessa Badman, Project Manager
Vanessa.Badman@et.eurofinsus.com
(717)556-9762

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

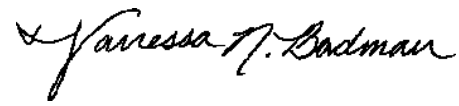

Table of Contents

Definitions/Glossary

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

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
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
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)
TNTC	Too Numerous To Count

Job ID: 410-169140-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-169140-1

REVISION

The report being provided is a revision of the original report sent on 5/2/2024. The report (revision 2) is being revised due to the request to report U flags.

Report revision history
Revision 1 - 5/15/2024 - Reason - the reporting of the surrogate compound for method 8151.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/24/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 7.5°C.

Receipt Exceptions
The following samples were received at the laboratory outside the required temperature criteria: LAI-1(2-3) (410-169140-1), LAI-1(3-4) (410-169140-2), LAI-1(4-5) (410-169140-3), LAI-2(2-3) (410-169140-4), LAI-2(3-4) (410-169140-5), LAI-2(4-5) (410-169140-6), LAI-3(2-3) (410-169140-7), LAI-3(3-4) (410-169140-8), LAI-3(4-5) (410-169140-9), DUP-1 (410-169140-10) and IDW-20240423 (410-169140-11). This does not meet regulatory requirements. The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

Cooler received high temp
recorded temps (IR973WS): 9.6 8.6 7.8 9.1 8.3

Herbicides
Method 8151A: Surrogate recovery for the following sample was outside control limits: LAI-1(2-3) (410-169140-1). Low surrogates due to poor sample matrix, brown and sandy.

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

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

Detection Summary

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Client Sample ID: LAI-1(2-3) — Lab Sample ID: 410-169140-1

No Detections.

Client Sample ID: LAI-1(3-4) — Lab Sample ID: 410-169140-2

No Detections.

Client Sample ID: LAI-1(4-5) — Lab Sample ID: 410-169140-3

No Detections.

Client Sample ID: LAI-2(2-3) — Lab Sample ID: 410-169140-4

No Detections.

Client Sample ID: LAI-2(3-4) — Lab Sample ID: 410-169140-5

No Detections.

Client Sample ID: LAI-2(4-5) — Lab Sample ID: 410-169140-6

No Detections.

Client Sample ID: LAI-3(2-3) — Lab Sample ID: 410-169140-7

No Detections.

Client Sample ID: LAI-3(3-4) — Lab Sample ID: 410-169140-8

No Detections.

Client Sample ID: LAI-3(4-5) — Lab Sample ID: 410-169140-9

No Detections.

Client Sample ID: DUP-1 — Lab Sample ID: 410-169140-10

No Detections.

Client Sample ID: IDW-20240423 — Lab Sample ID: 410-169140-11

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Client Sample ID: LAI-1(2-3)

Date Collected: 04/23/24 10:20
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-1

Matrix: Solid
Percent Solids: 81.6

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	15	U cn	44	15	ug/Kg	☼	04/26/24 01:00	04/30/24 13:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*55*	*cn*	*54 - 140*	*04/26/24 01:00*	*04/30/24 13:49*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*46*	*S1- cn*	*54 - 140*	*04/26/24 01:00*	*04/30/24 13:49*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**18.4**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: LAI-1(3-4)

Date Collected: 04/23/24 10:25
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-2

Matrix: Solid
Percent Solids: 80.3

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	15	U	45	15	ug/Kg	☼	04/26/24 01:00	04/30/24 14:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*76*		*54 - 140*	*04/26/24 01:00*	*04/30/24 14:23*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*63*		*54 - 140*	*04/26/24 01:00*	*04/30/24 14:23*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**19.7**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: LAI-1(4-5)

Date Collected: 04/23/24 10:30
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-3

Matrix: Solid
Percent Solids: 82.6

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	15	U	44	15	ug/Kg	☼	04/26/24 01:00	04/30/24 14:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*57*		*54 - 140*	*04/26/24 01:00*	*04/30/24 14:57*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*58*		*54 - 140*	*04/26/24 01:00*	*04/30/24 14:57*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**17.4**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: LAI-2(2-3)

Lab Sample ID: 410-169140-4
Date Collected: 04/23/24 11:20
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 81.6

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	15	U	44	15	ug/Kg	☼	04/26/24 01:00	04/30/24 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*82*		*54 - 140*	*04/26/24 01:00*	*04/30/24 15:31*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*73*		*54 - 140*	*04/26/24 01:00*	*04/30/24 15:31*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**18.4**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: LAI-2(3-4)

Lab Sample ID: 410-169140-5
Date Collected: 04/23/24 11:25
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 80.8

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	15	U	44	15	ug/Kg	☼	04/26/24 01:00	04/30/24 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*85*		*54 - 140*	*04/26/24 01:00*	*04/30/24 16:05*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*80*		*54 - 140*	*04/26/24 01:00*	*04/30/24 16:05*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**19.2**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: LAI-2(4-5)

Lab Sample ID: 410-169140-6
Date Collected: 04/23/24 11:30
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 83.1

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	14	U	43	14	ug/Kg	☼	04/26/24 01:00	04/30/24 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*70*		*54 - 140*	*04/26/24 01:00*	*04/30/24 16:40*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*70*		*54 - 140*	*04/26/24 01:00*	*04/30/24 16:40*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**16.9**		1.0	1.0	%			04/25/24 10:44	1

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Client Sample ID: LAI-3(2-3)

Lab Sample ID: 410-169140-7
Date Collected: 04/23/24 12:40
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 82.1

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	15	U	44	15	ug/Kg	☼	04/26/24 01:00	04/30/24 17:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*81*		*54 - 140*	*04/26/24 01:00*	*04/30/24 17:14*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*77*		*54 - 140*	*04/26/24 01:00*	*04/30/24 17:14*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**17.9**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: LAI-3(3-4)

Lab Sample ID: 410-169140-8
Date Collected: 04/23/24 12:45
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 80.9

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	15	U	44	15	ug/Kg	☼	04/26/24 01:00	04/30/24 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*86*		*54 - 140*	*04/26/24 01:00*	*04/30/24 17:48*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*89*		*54 - 140*	*04/26/24 01:00*	*04/30/24 17:48*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**19.1**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: LAI-3(4-5)

Lab Sample ID: 410-169140-9
Date Collected: 04/23/24 12:50
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 82.5

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	14	U	43	14	ug/Kg	☼	04/26/24 01:00	04/30/24 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*80*		*54 - 140*	*04/26/24 01:00*	*04/30/24 19:30*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*85*		*54 - 140*	*04/26/24 01:00*	*04/30/24 19:30*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**17.5**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: DUP-1

Lab Sample ID: 410-169140-10
Date Collected: 04/23/24 00:00
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 82.4

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	14	U	43	14	ug/Kg	☼	04/26/24 01:00	04/30/24 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*84*		*54 - 140*	*04/26/24 01:00*	*04/30/24 20:04*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*71*		*54 - 140*	*04/26/24 01:00*	*04/30/24 20:04*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**17.6**		1.0	1.0	%			04/25/24 10:44	1

Client Sample ID: IDW-20240423

Lab Sample ID: 410-169140-11
Date Collected: 04/23/24 13:40
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 77.1

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	15	U	46	15	ug/Kg	☼	04/26/24 01:00	04/30/24 20:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*85*		*54 - 140*	*04/26/24 01:00*	*04/30/24 20:38*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*92*		*54 - 140*	*04/26/24 01:00*	*04/30/24 20:38*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**22.9**		1.0	1.0	%			04/25/24 10:44	1

Surrogate Summary

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	DCPAA1 (54-140)	DCPAA2 (54-140)										
410-169140-1	LAI-1(2-3)	55 cn	46 S1- cn										
410-169140-2	LAI-1(3-4)	76	63										
410-169140-3	LAI-1(4-5)	57	58										
410-169140-4	LAI-2(2-3)	82	73										
410-169140-5	LAI-2(3-4)	85	80										
410-169140-6	LAI-2(4-5)	70	70										
410-169140-7	LAI-3(2-3)	81	77										
410-169140-8	LAI-3(3-4)	86	89										
410-169140-9	LAI-3(4-5)	80	85										
410-169140-10	DUP-1	84	71										
410-169140-11	IDW-20240423	85	92										
LCS 410-498843/2-A	Lab Control Sample	80	88										
MB 410-498843/1-A	Method Blank	77	78										

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-498843/1-A
Matrix: Solid
Analysis Batch: 500014

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 498843

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D (1C)	12	U	36	12	ug/Kg		04/26/24 01:00	04/30/24 05:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*77*		*54 - 140*	*04/26/24 01:00*	*04/30/24 05:28*	*1*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*78*		*54 - 140*	*04/26/24 01:00*	*04/30/24 05:28*	*1*

Lab Sample ID: LCS 410-498843/2-A
Matrix: Solid
Analysis Batch: 500014

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 498843

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4-D (2C)			83.7	79.0		ug/Kg		94	40 - 138		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid (Surr) (1C)	*80*		*54 - 140*
2,4-Dichlorophenylacetic acid (Surr) (2C)	*88*		*54 - 140*

QC Association Summary

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

GC Semi VOA

Prep Batch: 498843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-169140-1	LAI-1(2-3)	Total/NA	Solid	8151A	
410-169140-2	LAI-1(3-4)	Total/NA	Solid	8151A	
410-169140-3	LAI-1(4-5)	Total/NA	Solid	8151A	
410-169140-4	LAI-2(2-3)	Total/NA	Solid	8151A	
410-169140-5	LAI-2(3-4)	Total/NA	Solid	8151A	
410-169140-6	LAI-2(4-5)	Total/NA	Solid	8151A	
410-169140-7	LAI-3(2-3)	Total/NA	Solid	8151A	
410-169140-8	LAI-3(3-4)	Total/NA	Solid	8151A	
410-169140-9	LAI-3(4-5)	Total/NA	Solid	8151A	
410-169140-10	DUP-1	Total/NA	Solid	8151A	
410-169140-11	IDW-20240423	Total/NA	Solid	8151A	
MB 410-498843/1-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-498843/2-A	Lab Control Sample	Total/NA	Solid	8151A	

Analysis Batch: 500014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-169140-1	LAI-1(2-3)	Total/NA	Solid	8151A	498843
410-169140-2	LAI-1(3-4)	Total/NA	Solid	8151A	498843
410-169140-3	LAI-1(4-5)	Total/NA	Solid	8151A	498843
410-169140-4	LAI-2(2-3)	Total/NA	Solid	8151A	498843
410-169140-5	LAI-2(3-4)	Total/NA	Solid	8151A	498843
410-169140-6	LAI-2(4-5)	Total/NA	Solid	8151A	498843
410-169140-7	LAI-3(2-3)	Total/NA	Solid	8151A	498843
410-169140-8	LAI-3(3-4)	Total/NA	Solid	8151A	498843
410-169140-9	LAI-3(4-5)	Total/NA	Solid	8151A	498843
410-169140-10	DUP-1	Total/NA	Solid	8151A	498843
410-169140-11	IDW-20240423	Total/NA	Solid	8151A	498843
MB 410-498843/1-A	Method Blank	Total/NA	Solid	8151A	498843
LCS 410-498843/2-A	Lab Control Sample	Total/NA	Solid	8151A	498843

General Chemistry

Analysis Batch: 498517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-169140-1	LAI-1(2-3)	Total/NA	Solid	Moisture	
410-169140-2	LAI-1(3-4)	Total/NA	Solid	Moisture	
410-169140-3	LAI-1(4-5)	Total/NA	Solid	Moisture	
410-169140-4	LAI-2(2-3)	Total/NA	Solid	Moisture	
410-169140-5	LAI-2(3-4)	Total/NA	Solid	Moisture	
410-169140-6	LAI-2(4-5)	Total/NA	Solid	Moisture	
410-169140-7	LAI-3(2-3)	Total/NA	Solid	Moisture	
410-169140-8	LAI-3(3-4)	Total/NA	Solid	Moisture	
410-169140-9	LAI-3(4-5)	Total/NA	Solid	Moisture	
410-169140-10	DUP-1	Total/NA	Solid	Moisture	
410-169140-11	IDW-20240423	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Client Sample ID: LAI-1(2-3)
Date Collected: 04/23/24 10:20
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Client Sample ID: LAI-1(2-3)
Date Collected: 04/23/24 10:20
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-1
Matrix: Solid
Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 13:49

Client Sample ID: LAI-1(3-4)
Date Collected: 04/23/24 10:25
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Client Sample ID: LAI-1(3-4)
Date Collected: 04/23/24 10:25
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-2
Matrix: Solid
Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 14:23

Client Sample ID: LAI-1(4-5)
Date Collected: 04/23/24 10:30
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Client Sample ID: LAI-1(4-5)
Date Collected: 04/23/24 10:30
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-3
Matrix: Solid
Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 14:57

Client Sample ID: LAI-2(2-3)
Date Collected: 04/23/24 11:20
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Client Sample ID: LAI-2(2-3)
Date Collected: 04/23/24 11:20
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-4
Matrix: Solid
Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 15:31

Client Sample ID: LAI-2(3-4)
Date Collected: 04/23/24 11:25
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Client Sample ID: LAI-2(3-4)
Date Collected: 04/23/24 11:25
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-5
Matrix: Solid
Percent Solids: 80.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 16:05

Client Sample ID: LAI-2(4-5)
Date Collected: 04/23/24 11:30
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Client Sample ID: LAI-2(4-5)
Date Collected: 04/23/24 11:30
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-6
Matrix: Solid
Percent Solids: 83.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 16:40

Client Sample ID: LAI-3(2-3)
Date Collected: 04/23/24 12:40
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Client Sample ID: LAI-3(2-3)
Date Collected: 04/23/24 12:40
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-7
Matrix: Solid
Percent Solids: 82.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 17:14

Client Sample ID: LAI-3(3-4)
Date Collected: 04/23/24 12:45
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Client Sample ID: LAI-3(3-4)
Date Collected: 04/23/24 12:45
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-8
Matrix: Solid
Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 17:48

Client Sample ID: LAI-3(4-5)
Date Collected: 04/23/24 12:50
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Client Sample ID: LAI-3(4-5)
Date Collected: 04/23/24 12:50
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-9
Matrix: Solid
Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 19:30

Client Sample ID: DUP-1
Date Collected: 04/23/24 00:00
Date Received: 04/24/24 09:40

Lab Sample ID: 410-169140-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Lab Chronicle

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Client Sample ID: DUP-1

Lab Sample ID: 410-169140-10
Date Collected: 04/23/24 00:00
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 82.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 20:04

Client Sample ID: IDW-20240423

Lab Sample ID: 410-169140-11
Date Collected: 04/23/24 13:40
Matrix: Solid
Date Received: 04/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	498517	UVJN	ELLE	04/25/24 10:44

Client Sample ID: IDW-20240423

Lab Sample ID: 410-169140-11
Date Collected: 04/23/24 13:40
Matrix: Solid
Date Received: 04/24/24 09:40
Percent Solids: 77.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			498843	USL7	ELLE	04/26/24 01:00
Total/NA	Analysis	8151A		1	500014	UAMZ	ELLE	04/30/24 20:38

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Landau & Associates, Inc. Job ID: 410-169140-1
Project/Site: Chlorinated Herbicides Analysis

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

Method Summary

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	ELLE
Moisture	Percent Moisture	EPA	ELLE
8151A	Extraction (Herbicides)	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Landau & Associates, Inc.
Project/Site: Chlorinated Herbicides Analysis

Job ID: 410-169140-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-169140-1	LAI-1(2-3)	Solid	04/23/24 10:20	04/24/24 09:40
410-169140-2	LAI-1(3-4)	Solid	04/23/24 10:25	04/24/24 09:40
410-169140-3	LAI-1(4-5)	Solid	04/23/24 10:30	04/24/24 09:40
410-169140-4	LAI-2(2-3)	Solid	04/23/24 11:20	04/24/24 09:40
410-169140-5	LAI-2(3-4)	Solid	04/23/24 11:25	04/24/24 09:40
410-169140-6	LAI-2(4-5)	Solid	04/23/24 11:30	04/24/24 09:40
410-169140-7	LAI-3(2-3)	Solid	04/23/24 12:40	04/24/24 09:40
410-169140-8	LAI-3(3-4)	Solid	04/23/24 12:45	04/24/24 09:40
410-169140-9	LAI-3(4-5)	Solid	04/23/24 12:50	04/24/24 09:40
410-169140-10	DUP-1	Solid	04/23/24 00:00	04/24/24 09:40
410-169140-11	IDW-20240423	Solid	04/23/24 13:40	04/24/24 09:40

410-169140 Chain of Custody

f-Custody

North Seattle (206) 631-8660 | Spokane (509) 327-9737
Tacoma (253) 926-2493 | Portland (503) 542-1080
Olympia (360) 791-3178

Date 4/23/24
Page 1 of 1

Turnaround Time: Standard / Accelerated

Project Name [redacted]ery Project No. 7740[redacted]040.048
Project Location/Event Tumwater, WA
Sampler's Name NDD
Project Contact KatieGanglite KGanglitz@landauinc.com
Send Results To KGanglitz@landauinc.com
Data@landauinc.com

Special Handling Requirements:
Shipment Method: Air
Stored on ice: (Yes) / No

Sample I.D.	Date	Time	Matrix	No. of Containers	2,4-D by 8151A	Observations/Comments
LAI-1(2-3)	4/23/24	1020	SOIL	1	X	
LAI-1(3-4)		1025			X	
LAI-1(4-5)		1030			X	
LAI-2(2-3)		1120			X	
LAI-2(3-4)		1125			X	
LAI-2(4-5)		1130			X	
LAI-3(2-3)		1240			X	
LAI-3(3-4)		1245			X	
LAI-3(4-5)		1250			X	
DUP-1		—			X	
IDW-20240423		1340			X	

Testing Parameters

Observations/Comments:
- Allow water samples to settle, collect aliquot from clear portion ☐
- NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐
- Dissolved metal samples were field filtered

Other

Relinquished by	Received by	Relinquished by	Received by
Signature [signature]	Signature	Signature	Signature [signature]
Printed Name NATE DORFNER	Printed Name	Printed Name	Printed Name Conrad Burkholder
Company Landau	Company	Company	Company EMBT
Date 4/23/24 Time 1600	Date Time	Date Time	Date 4/24/24 Time 09:40

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

R: 7.5 C: 7.5

10/2018

Login Sample Receipt Checklist

Client: Landau & Associates, Inc. Job Number: 410-169140-1

Login Number: 169140 **List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**
List Number: 1
Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	