

Produce Safety After Urban Wildfire

Citizen Science Initiative

UC Cooperative Extension of Sonoma County

SITE-SPECIFIC REPORT

SITE NAME: Petaluma Bounty

SITE ID: PTL04

Foliar Samples Collected: 10/21/2017

Soil Samples Collected: 8/12/2018

Report Sent: 12/21/2018

This is a report intended only for the employees at the site where these samples were taken. Your site-specific results will remain confidential in all public reports that we publish. If you have any questions about these results or how to communicate results to your employees, volunteers or community, please do not hesitate to reach out.

**Please call or email Julia Van Soelen Kim at
(415) 473-4204 or jvansoelen@ucanr.edu.**

Petaluma Bounty Farm
 55 Shasta Ave
 Petaluma, CA 94952

December 21, 2018

Dear Petaluma Bounty staff,

Thank you for all of your time and energy in participating in the Produce Safety After Urban Wildfire project. We are deeply appreciative of all the work that Petaluma Bounty does for the community, including the powerful contributions to our local resilience and food security during the fires. Following the fires and the incredible response from local farmers, we embarked on this project to help answer community concerns about whether the safety of local produce might have been impacted by contaminants carried in the smoke and ash from the fire. We are very grateful to you for your contributions to this initiative.

This letter contains the **individual analysis results** for Petaluma Bounty. Based on your sites results, there is **low-concern of health impacts** from the produce grown during the fire, and from persistent contaminants found in the soil 8 months following the fire. Potential risks may be mitigated through common garden safety and food safety practices. In the attached documents, we provide a thorough breakdown of these results, our approach, and recommended next steps.

We are including two attachments:

1. Your Site-Specific Report

- a. **A copy of this letter**
- b. **Analysis results for your site:** Our analysis and graphs of the results from your garden, compared to health and safety thresholds from county, state and federal regulators.
- c. **Lab results for your site:** The direct lab results from produce and soil samples taken from your site that we used to create our analysis document.

- 2. **Guide to Understanding Risk.** Our guide to environmental health and our approach to assessing the potential health impacts of locally-grown produce exposed to urban wildfire smoke. This guide is intended to help you communicate these results to your community.

We will be releasing our final report of **overall results** within the coming months. Your site-specific information will remain confidential. Below, we have summarized the main findings that we will expand upon in the final report:

- Soil Summary:
 - Soil samples from all three tested sites contained detectable levels of dioxins, furans and heavy metals. The site closest to the Santa Rosa fires had the highest levels of dioxins and furans, at levels that exceed EPA and OEHHA soil screening levels. All heavy metal soil concentrations were below Sonoma County's post-fire clean-up goals.
 - We are unable to confirm whether these contaminants were present before the fire or are a result of the fire.
 - Soil samples did not have any detectable levels of Polychlorinated Biphenyls (PCBs).
- Produce Summary:
 - Produce samples did not have any detectable Polycyclic Aromatic Hydrocarbons (PAHs), or Polychlorinated Biphenyls (PCBs).
 - Produce did not have any detectable Dioxins and Furans in 12 out of 13 samples. The sample with detectable levels was still at a concentration below California's "No Significant Risk Level" threshold for determining chemical safety under Proposition 65.
 - Produce did not have any detectable Proposition 65-regulated heavy metals in 12 out of 13 samples. One sample contained nickel at levels that exceed the Prop 65 NSRL. No samples had detectable levels of lead, arsenic, mercury, or chromium.
- General Notes:
 - *It is important to note that* over long periods of time, exposure to these chemical groups at very low levels can still contribute to health impacts, including at *levels below what our tests are able to detect*.
 - *Numerous health benefits including cancer risk reduction* have been attributed to green leafy vegetables. These benefits may outweigh the additional risk from trace contaminants detected in some produce in this study. Quantitative comparisons will be provided in our final report.
 - *Some individuals have higher risks* and may want to be in communication with their healthcare provider to better understand if they should take extra precautions. Individuals at higher risk may also benefit greatly from the high nutrition in green leafy vegetables and fresh produce.
 - *Best practices for reducing risk include:* wearing a respirator mask during poor air quality; washing produce thoroughly in running water; peeling root vegetables, testing soil regularly; containing and amending contaminated soil through sheet mulching, raised beds, and compost.
 - *Best practices that enhance protective factors* and should also be pursued, such as increasing produce consumption to promote healthy nutrition, improve immunity, and support resilience to chemical exposures.

Over the next few months, we will be completing our final report and creating additional tools for communicating these results to concerned community members. **In the Spring of 2019, we will be conducting community workshops.** The first of these will be exclusive to employees and volunteers of the sites sampled for this study. These reports, handouts, workshop materials, and the protocols from our study will be made publicly available for use by other communities experiencing wildfire in the future. We look forward to working with you more as we roll out these materials and workshops.

If you have any questions about these results or how to communicate results to your employees, volunteers or community, please do not hesitate to reach out.

Please call or email Julia Van Soelen Kim at (415) 473-4204 or jvansoelen@ucanr.edu.

Thank you again for all of your hard work and critical contributions to the health and resilience of our community.

Sincerely,

Julia Van Soelen Kim

Principal Investigator, Produce Safety After Urban Wildfire
North Bay Food Systems Advisor
UC Cooperative Extension Marin | Mendocino | Napa | Sonoma

Vanessa Raditz

Citizen Science Coordinator, Produce Safety After Urban Wildfire

Mimi Enright

Program Manager

Community Food Systems & UC Master Gardener Program of Sonoma County

Suzi Grady

Director, Petaluma Bounty
Petaluma People's Services Center

Polychlorinated Biphenyls (PCBs) Summary – Plant Tissue

Interpretation: There were no PCBs detected in the plant samples from your site. However, due to the high reporting limit from standard laboratory methods, we are not able to confirm whether or not your site has PCBs at levels below our reporting limit that still exceed the Proposition 65 NSRL.

Table 1 shows how Proposition 65's "No Significant Risk Level" (NSRL) compares to the "reporting limit" (RL) from our lab, which is the lowest level that our tests are able to detect. E.g. Concentrations above 0.09 ug/day but below 0.19 ug/day would exceed Prop 65 NSRL levels, but would not be detected by our test.

Key: ND= "Non-Detect"; RL= "Reporting Limit"

Table 1: Proposition 65 Comparisons for PCBs

	Polychlorinated biphenyls			
	NSRL	Daily Intake from Levels Found at Site	Daily Intake at Method Reporting Limit ND=9.1 (min RL)	Daily Intake at Method Reporting Limit ND=32 (max RL)
PCB Intake Rate (ug/day)	0.09	0	0.1911	0.672

Polychlorinated Biphenyls (PCBs) Summary – Soil

Interpretation: There were no PCBs detected in the soil from your site. The reporting limit from our laboratory methods are far below the EPA's PCB soil screening levels, so we can confidently conclude that no PCBs are present at hazardous levels in soil.

Table 2 shows a comparison of the reporting limits from our laboratory methods with the EPA's screening levels for PCBs in soil.

Table 2: Comparison of Reporting Limit to Screening Level (ug/Kg)

PCB	PTL04 Screening Level	EPA Screening Level
Aroclor-1016	12	411
Aroclor-1221	24	2000
Aroclor-1232	12	1720
Aroclor-1242	12	2300
Aroclor-1248	12	2310
Aroclor-1254	12	176
Aroclor-1260	12	2400

Dioxins & Furans Summary – Plant Tissue

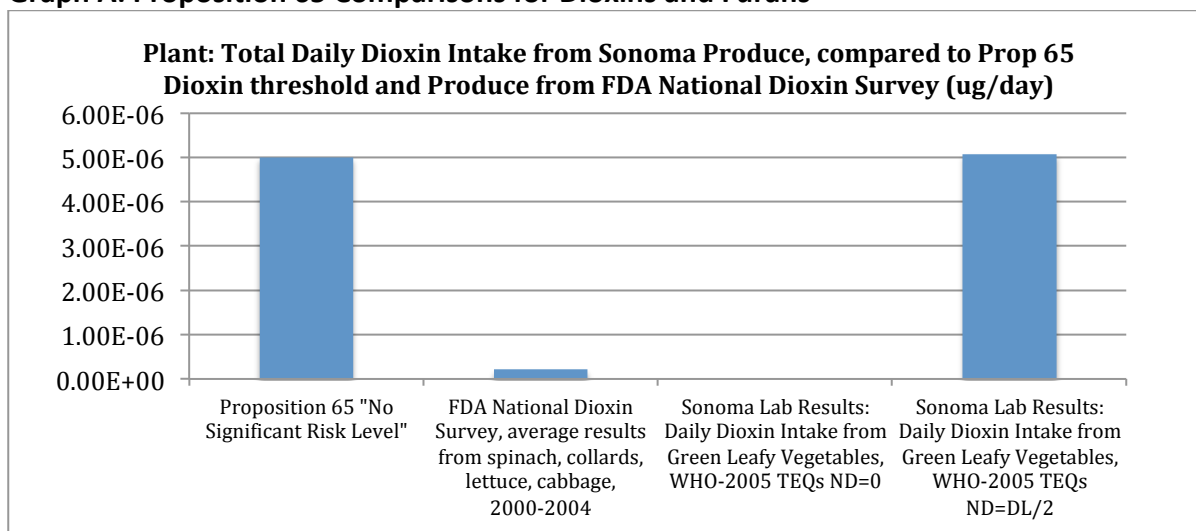
Interpretation: Some dioxins or furans were detected in 4 out of 7 samples from your site, but no samples had detectable levels of the higher-toxicity dioxins that are of greatest concern for public health. However, we cannot completely confirm that your site does not have dioxins & furans above the Proposition 65 NSRL due to the high detection limit from standard laboratory methods.

Table 3 and graph A shows how Proposition 65's "No Significant Risk Level" (NSRL) compares to the "detection limit" (DL) from our lab, which is the lowest level that our tests are able to detect. It is a common convention in scientific studies to use half of the detection limit rather than "0" for non-detect results (ND=DL/2). Your ND=DL/2 results are equivalent to the Prop 65 NSRL. Key: ND= "Non-Detect"; DL= "Detection Limit"

Table 3: Proposition 65 Comparisons for Dioxins and Furans

	Proposition 65 "No Significant Risk Level"	FDA National Dioxin Survey, average results from spinach, collards, lettuce, cabbage, 2000-2004	Sonoma Lab Results: Daily Dioxin Intake from Green Leafy Vegetables, WHO-2005 TEQs ND=0	Sonoma Lab Results: Daily Dioxin Intake from Green Leafy Vegetables, WHO-2005 TEQs ND=DL/2
Dioxins & Furans Intake Rate (ug/day)	5×10^{-6}	2.23×10^{-7}	0	5.07×10^{-6}

Graph A: Proposition 65 Comparisons for Dioxins and Furans



Dioxins & Furans Summary – Soil (Page 1 of 2)

Interpretation: Several dioxins and furans were detected in soil from your site, but all at concentrations below the EPA's Dioxin Screening Levels.

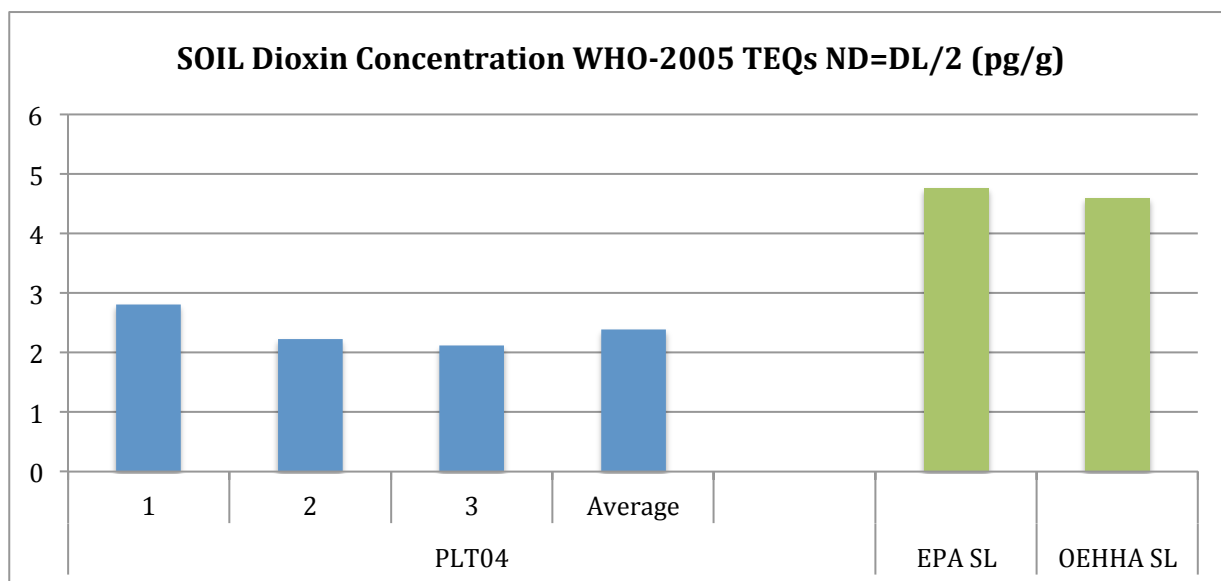
Table 4 shows a ***cumulative dioxin concentration*** for your site. These values are created by scaling the concentrations of each dioxin and furan detected (Table 5) by the relative toxicity of each dioxin or furan. This is known as the “Toxic Equivalency Factor” (TEQ). We used the TEQs proposed by the World Health Organization (WHO) in 2005. We compared this cumulative dioxin concentration to the soil dioxin screening level proposed by the EPA.

Key: ND= “Non-detect”, DL= “Detection Limit”, SL= “Screening Level”

Table 4: Cumulative Dioxin Concentration WHO 2005 TEQ ND=DL/2 (pg/g)

Site	PLT04				EPA Screening Level	OEHHA Screening Level
Replicate	1	2	3	Average		
Cumulative Dioxin Conc. WHO-2005 TEQs ND=DL/2 (pg/g)	2.81	2.23	2.12	2.3867	4.77	4.6

Graph B: Cumulative Dioxin Concentration WHO 2005 TEQ ND=DL/2 (pg/g)



Dioxins & Furans Summary – Soil (Page 2 of 2)

Table 5 summarizes the laboratory results of the soil from your site. It is worth noting that each of the dioxins and furans listed here have different toxicities, and that there were no detections from your site of the most toxic dioxin, 2,3,7,8-TCDD.

Table 5: Dioxin and Furans Concentrations (pg/g) ND=0

Site	PTL04			Average from site
Replicate	1	2	3	
2,3,7,8-TCDD	0	0	0	0
1,2,3,7,8-PeCDD	0	0	0	0
1,2,3,4,7,8-HxCDD	0.65	0.87	0.56	0.69
1,2,3,6,7,8-HxCDD	3.72	4.22	2.83	3.59
1,2,3,7,8,9-HxCDD	1.82	0	1.50	1.11
1,2,3,4,6,7,8-HpCDD	89.50	115.00	79.30	94.60
OCDD	697.00	965.00	611.00	757.67
2,3,7,8-TCDF	0	0	0.43	0.14
1,2,3,7,8-PeCDF	0.25	0.31	0.24	0.27
2,3,4,7,8-PeCDF	0.56	0.66	0.60	0.61
1,2,3,4,7,8-HxCDF	0.75	0	0.41	0.39
1,2,3,6,7,8-HxCDF	0.00	0.44	0.60	0.35
1,2,3,7,8,9-HxCDF	0.76	0.80	0	0.52
2,3,4,6,7,8-HxCDF	0	0	6.54	2.18
1,2,3,4,6,7,8-HpCDF	7.58	10.40	0.64	6.21
1,2,3,4,7,8,9-HpCDF	0.67	0.87	18.40	6.65
OCDF	22.60	29.70	0	17.43

Heavy Metals Summary – Plant Tissue

Interpretation: Some heavy metals were detected in the plant tissue sampled from your site, but none that are on the Proposition 65 list.

Table 6 summarizes the laboratory results of plant tissue sampled from your site. There were no detections of the heavy metals of greatest concern to public health, including Lead, Arsenic, Mercury, Nickel, and Chromium.

Table 6: Heavy Metals Concentrations ND=0 (mg/kg)

Site	PLT04							AVG
Wash Condition	Washed				Unwashed			
Replicate	1	2	3	4	1	2	3	
Antimony								0
Arsenic								0
Barium	5.4	4.8	2.3	3.2	6.5	5.7	8.2	5.16
Beryllium								0
Cadmium								0
Chromium								0
Cobalt								0
Copper	0.65	0.9	0.57	0.72	0.55	0.51	0	0.56
Lead								0
Mercury								0
Molybdenum	0.71	0.59	0	0.96	0.56	0	0.92	0.53
Nickel								0
Selenium								0
Silver								0
Thallium								0
Vanadium								0
Zinc	5.6	12	7.1	9.5	14	8.1	15	10.19

Heavy Metals Summary – Soil (Page 1 of 2)

Interpretation: Some heavy metals were found in soil from your site. All levels were below Sonoma County Clean-Up Goals, and all metals except for arsenic were detected at levels below the EPA's Screening Levels. Arsenic was detected above EPA's Screening Level, but this is likely due to high background levels in the region.

Table 7 summarizes the laboratory results of soil sampled from your site.

Table 7: Heavy Metals Concentrations ND=0 (mg/kg)

Site	PLT04			Average
Replicate	1	2	3	from Site
Antimony				0
Arsenic	2.6	2.8	2.7	2.70
Barium	130	150	140	140.00
Beryllium	0.31	0.3	0.3	0.30
Cadmium	0.42	0.48	0.39	0.43
Chromium	23	22	30	25.00
Cobalt	7.5	9.6	8.4	8.50
Copper	18	18	18	18.00
Lead	58	57	52	55.67
Mercury	0.071	0.051	0.064	0.06
Molybdenum	0.4	0.5	0.47	0.46
Nickel	17	16	16	16.33
Selenium				0
Silver				0
Thallium				0
Vanadium	23	22	23	22.67
Zinc	110	120	120	116.67

Heavy Metals Summary – Soil (Page 2 of 2)

Table 8 compares the average heavy metals concentration from your site to regional background levels, federal (USA EPA) and state (CalEPA) soil screening levels, and to the Clean-Up Goals set by the Sonoma County Department of Health Services.

Table 8: Heavy Metals comparison to standards and clean up goals ND=0 (mg/kg)

	PTL04 Site Average	From Sonoma County Department of Health Services: "Sonoma County Complex Fire Clean-up Goals"			
		"Background"	USA EPA RSL	CalEPA CHHSL	Clean-Up Goal
Arsenic	2.70	6.18	0.7	0.1	6.2
Barium	140.00	263.2	15000	5200	5200
Beryllium	0.30	2079	160	16	15
Cadmium	0.43	0.184	71	1.7	1.7
Chromium	25.00	110	120000	100000	36000
Cobalt	8.50	29.2	23	660	29.2
Copper	18.00	40.35	3100	3000	3000
Lead	55.67	39.76	400	80	80
Mercury	0.06	3.19	5.1	18	5.1
Molybdenum	0.46	0.759	390	380	380
Nickel	16.33	102.7	1500	1600	490
Vanadium	22.67	120	390	530	390
Zinc	116.67	74.5	23000	23000	23000



Enthalpy Analytical - Berkeley Analytical Report

Lab #:	302752	Location:	Produce Safety after Urban Wildfire
Client:	UCCE Sonoma	Prep:	EPA 3546
Project#:	STANDARD	Analysis:	EPA 8082
Matrix:	Soil	Received:	08/28/18
Units:	ug/Kg	Prepared:	09/27/18
Basis:	as received	Analyzed:	09/27/18
Batch#:	263943		

Field ID:	PTL04-SOIL	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	08/12/18
Lab ID:	302752-032		

Analyte	Result	RL
Aroclor-1016	ND b	12
Aroclor-1221	ND b	24
Aroclor-1232	ND b	12
Aroclor-1242	ND b	12
Aroclor-1248	ND b	12
Aroclor-1254	ND b	12
Aroclor-1260	ND b	12

Surrogate	%REC	Limits
Decachlorobiphenyl	116 b	37-170

Field ID:	PTL04-SOIL	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	08/12/18
Lab ID:	302752-033		

Analyte	Result	RL
Aroclor-1016	ND b	12
Aroclor-1221	ND b	24
Aroclor-1232	ND b	12
Aroclor-1242	ND b	12
Aroclor-1248	ND b	12
Aroclor-1254	ND b	12
Aroclor-1260	ND b	12

Surrogate	%REC	Limits
Decachlorobiphenyl	124 b	37-170

Field ID:	PTL04-SOIL	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	08/12/18
Lab ID:	302752-034		

Analyte	Result	RL
Aroclor-1016	ND b	12
Aroclor-1221	ND b	24
Aroclor-1232	ND b	12
Aroclor-1242	ND b	12
Aroclor-1248	ND b	12
Aroclor-1254	ND b	12
Aroclor-1260	ND b	12

Surrogate	%REC	Limits
Decachlorobiphenyl	127 b	37-170

b= See narrative
 ND= Not Detected
 RL= Reporting Limit

Polychlorinated Biphenyls (PCBs)

Lab #:	302752	Location:	Produce Safety after Urban Wildfire
Client:	UCCE Sonoma	Prep:	EPA 3540C
Project#:	STANDARD	Analysis:	EPA 8082
Matrix:	Miscell.	Batch#:	263236
Units:	ug/Kg	Received:	08/28/18
Basis:	as received	Prepared:	09/06/18
Diln Fac:	1.000		

Field ID: PLT04-PLANT-WASHED
 Type: SAMPLE
 Lab ID: 302752-019

Sampled: 10/21/17
 Analyzed: 09/07/18

Analyte	Result	RL
Aroclor-1016	ND	16
Aroclor-1221	ND	32
Aroclor-1232	ND	16
Aroclor-1242	ND	16
Aroclor-1248	ND	16
Aroclor-1254	ND	16
Aroclor-1260	ND	16

Surrogate	%REC	Limits
Decachlorobiphenyl	95	37-170

Field ID: PLT04-PLANT-WASHED
 Type: SAMPLE
 Lab ID: 302752-020

Sampled: 10/21/17
 Analyzed: 09/07/18

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	90	37-170

Field ID: PLT04-PLANT-WASHED
 Type: SAMPLE
 Lab ID: 302752-021

Sampled: 10/21/17
 Analyzed: 09/07/18

Analyte	Result	RL
Aroclor-1016	ND	13
Aroclor-1221	ND	25
Aroclor-1232	ND	13
Aroclor-1242	ND	13
Aroclor-1248	ND	13
Aroclor-1254	ND	13
Aroclor-1260	ND	13

Surrogate	%REC	Limits
Decachlorobiphenyl	108	37-170

ND= Not Detected
 RL= Reporting Limit

Polychlorinated Biphenyls (PCBs)

Lab #:	302752	Location:	Produce Safety after Urban Wildfire
Client:	UCCE Sonoma	Prep:	EPA 3540C
Project#:	STANDARD	Analysis:	EPA 8082
Matrix:	Miscell.	Batch#:	263236
Units:	ug/Kg	Received:	08/28/18
Basis:	as received	Prepared:	09/06/18
Diln Fac:	1.000		

Field ID: PLT04-PLANT-WASHED
 Type: SAMPLE
 Lab ID: 302752-022

Sampled: 10/21/17
 Analyzed: 09/07/18

Analyte	Result	RL
Aroclor-1016	ND	9.1
Aroclor-1221	ND	18
Aroclor-1232	ND	9.1
Aroclor-1242	ND	9.1
Aroclor-1248	ND	9.1
Aroclor-1254	ND	9.1
Aroclor-1260	ND	9.1

Surrogate	%REC	Limits
Decachlorobiphenyl	95	37-170

Field ID: PLT04-PLANT-UNWASHED
 Type: SAMPLE
 Lab ID: 302752-023

Sampled: 10/21/17
 Analyzed: 09/07/18

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	87	37-170

Field ID: PLT04-PLANT-UNWASHED
 Type: SAMPLE
 Lab ID: 302752-024

Sampled: 10/21/17
 Analyzed: 09/08/18

Analyte	Result	RL
Aroclor-1016	ND	10
Aroclor-1221	ND	20
Aroclor-1232	ND	10
Aroclor-1242	ND	10
Aroclor-1248	ND	10
Aroclor-1254	ND	10
Aroclor-1260	ND	10

Surrogate	%REC	Limits
Decachlorobiphenyl	94	37-170

ND= Not Detected
 RL= Reporting Limit

Polychlorinated Biphenyls (PCBs)

Lab #:	302752	Location:	Produce Safety after Urban Wildfire
Client:	UCCE Sonoma	Prep:	EPA 3540C
Project#:	STANDARD	Analysis:	EPA 8082
Matrix:	Miscell.	Batch#:	263236
Units:	ug/Kg	Received:	08/28/18
Basis:	as received	Prepared:	09/06/18
Diln Fac:	1.000		

Field ID: PLT04-PLANT-UNWASHED
 Type: SAMPLE
 Lab ID: 302752-025

Sampled: 10/21/17
 Analyzed: 09/08/18

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	104	37-170

Type: BLANK
 Lab ID: QC946638

Analyzed: 09/08/18

Analyte	Result	RL
Aroclor-1016	ND	20
Aroclor-1221	ND	40
Aroclor-1232	ND	20
Aroclor-1242	ND	20
Aroclor-1248	ND	20
Aroclor-1254	ND	20
Aroclor-1260	ND	20

Surrogate	%REC	Limits
Decachlorobiphenyl	144	37-170

ND= Not Detected
 RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PTL04-SOIL	Basis:	as received
Lab ID:	302752-032	Diln Fac:	1.000
Matrix:	Soil	Sampled:	08/12/18
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	1.8	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Arsenic	2.6	1.4	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Barium	130	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Beryllium	0.31	0.091	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Cadmium	0.42	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Chromium	23	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Cobalt	7.5	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Copper	18	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Lead	58	0.91	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Mercury	0.071	0.017	263263	09/07/18	09/07/18	METHOD	EPA 7471A
Molybdenum	0.40	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Nickel	17	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Selenium	ND	1.8	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.45	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Vanadium	23	0.23	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Zinc	110 b	0.91	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B

b= See narrative

ND= Not Detected

RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PTL04-SOIL	Basis:	as received
Lab ID:	302752-033	Diln Fac:	1.000
Matrix:	Soil	Sampled:	08/12/18
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Arsenic	2.8	1.5	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Barium	150	0.25	263353	09/11/18	09/12/18	EPA 3050B	EPA 6010B
Beryllium	0.30	0.098	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Cadmium	0.48	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Chromium	22	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Cobalt	9.6	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Copper	18	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Lead	57	0.98	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Mercury	0.051	0.018	263263	09/07/18	09/07/18	METHOD	EPA 7471A
Molybdenum	0.50	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Nickel	16	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.49	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Vanadium	22	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Zinc	120 b	0.98	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B

b= See narrative

ND= Not Detected

RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PTL04-SOIL	Basis:	as received
Lab ID:	302752-034	Diln Fac:	1.000
Matrix:	Soil	Sampled:	08/12/18
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Arsenic	2.7	1.5	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Barium	140	0.25	263353	09/11/18	09/12/18	EPA 3050B	EPA 6010B
Beryllium	0.30	0.10	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Cadmium	0.39	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Chromium	30	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Cobalt	8.4	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Copper	18	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Lead	52	1.0	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Mercury	0.064	0.015	263263	09/07/18	09/07/18	METHOD	EPA 7471A
Molybdenum	0.47	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Nickel	16	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Silver	ND	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Thallium	ND	0.50	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Vanadium	23	0.25	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B
Zinc	120 b	1.0	263353	09/11/18	09/11/18	EPA 3050B	EPA 6010B

b= See narrative

ND= Not Detected

RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PLT04-PLANT-WASHED	Basis:	as received
Lab ID:	302752-019	Diln Fac:	1.000
Matrix:	Miscell.	Sampled:	10/21/17
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Arsenic	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Barium	5.4	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Beryllium	ND	0.20	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cadmium	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Chromium	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cobalt	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Copper	0.65	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Lead	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Mercury	ND	0.017	263505	09/14/18	09/14/18	METHOD	EPA 7471A
Molybdenum	0.71	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Nickel	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Silver	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Thallium	ND	0.98	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Vanadium	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Zinc	5.6	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PLT04-PLANT-WASHED	Basis:	as received
Lab ID:	302752-020	Diln Fac:	1.000
Matrix:	Miscell.	Sampled:	10/21/17
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Arsenic	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Barium	4.8	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Beryllium	ND	0.18	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cadmium	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Chromium	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cobalt	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Copper	0.90	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Lead	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Mercury	ND	0.017	263505	09/14/18	09/14/18	METHOD	EPA 7471A
Molybdenum	0.59	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Nickel	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Silver	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Thallium	ND	0.92	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Vanadium	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Zinc	12	1.8	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PLT04-PLANT-WASHED	Basis:	as received
Lab ID:	302752-021	Diln Fac:	1.000
Matrix:	Miscell.	Sampled:	10/21/17
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Arsenic	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Barium	2.3	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Beryllium	ND	0.21	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cadmium	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Chromium	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cobalt	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Copper	0.57	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Lead	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Mercury	ND	0.016	263505	09/14/18	09/14/18	METHOD	EPA 7471A
Molybdenum	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Nickel	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Silver	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Thallium	ND	1.1	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Vanadium	ND	0.53	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Zinc	7.1	2.1	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PLT04-PLANT-WASHED	Basis:	as received
Lab ID:	302752-022	Diln Fac:	1.000
Matrix:	Miscell.	Sampled:	10/21/17
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Arsenic	ND	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Barium	3.2	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Beryllium	ND	0.21	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cadmium	ND	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Chromium	ND	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cobalt	ND	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Copper	0.72	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Lead	ND	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Mercury	ND	0.018	263505	09/14/18	09/14/18	METHOD	EPA 7471A
Molybdenum	0.96	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Nickel	ND	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Silver	ND	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Thallium	ND	1.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Vanadium	ND	0.52	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Zinc	9.5	2.1	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PLT04-PLANT-UNWASHED	Basis:	as received
Lab ID:	302752-023	Diln Fac:	1.000
Matrix:	Miscell.	Sampled:	10/21/17
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Arsenic	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Barium	6.5	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Beryllium	ND	0.18	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cadmium	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Chromium	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cobalt	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Copper	0.55	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Lead	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Mercury	ND	0.017	263505	09/14/18	09/14/18	METHOD	EPA 7471A
Molybdenum	0.56	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Nickel	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Silver	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Thallium	ND	0.91	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Vanadium	ND	0.46	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Zinc	14	1.8	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PLT04-PLANT-UNWASHED	Basis:	as received
Lab ID:	302752-024	Diln Fac:	1.000
Matrix:	Miscell.	Sampled:	10/21/17
Units:	mg/Kg	Received:	08/28/18

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Arsenic	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Barium	5.7	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Beryllium	ND	0.20	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cadmium	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Chromium	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cobalt	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Copper	0.51	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Lead	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Mercury	ND	0.017	263505	09/14/18	09/14/18	METHOD	EPA 7471A
Molybdenum	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Nickel	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Silver	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Thallium	ND	0.98	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Vanadium	ND	0.49	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Zinc	8.1	2.0	263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

California Title 22 Metals

Lab #:	302752	Project#:	STANDARD
Client:	UCCE Sonoma	Location:	Produce Safety after Urban Wildfire
Field ID:	PLT04-PLANT-UNWASHED	Basis:	as received
Lab ID:	302752-025	Sampled:	10/21/17
Matrix:	Miscell.	Received:	08/28/18
Units:	mg/Kg		

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.0	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Arsenic	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Barium	8.2	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Beryllium	ND	0.24	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cadmium	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Chromium	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Cobalt	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Copper	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Lead	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Mercury	ND	0.018	1.000		263505	09/14/18	09/14/18	METHOD	EPA 7471A
Molybdenum	0.92	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Nickel	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Selenium	ND	2.0	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Silver	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Thallium	ND	1.2	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Thallium	ND	0.74	25.00		263038	08/30/18	09/11/18	EPA 3050B	EPA 6020
Vanadium	ND	0.59	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B
Zinc	15	2.4	1.000		263038	08/30/18	08/31/18	EPA 3050B	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Batch QC Report

California Title 22 Metals			
Lab #:	302752	Location:	Produce Safety after Urban Wildfire
Client:	UCCE Sonoma	Prep:	EPA 3050B
Project#:	STANDARD		
Field ID:	PLT04-PLANT-UNWASHED	Batch#:	263038
MSS Lab ID:	302752-025	Sampled:	10/21/17
Matrix:	Miscell.	Received:	08/28/18
Units:	mg/Kg	Prepared:	08/30/18
Basis:	as received		

Type: MS Lab ID: QC945898

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln	Fac	Analyzed	Analysis
Antimony	0.1940	108.6	115.7	106	75-120	1.000		08/31/18	EPA 6010B
Arsenic	<0.1567	108.6	114.3	105	80-124	1.000		08/31/18	EPA 6010B
Barium	8.179	108.6	121.0	104	75-125	1.000		08/31/18	EPA 6010B
Beryllium	<0.02374	54.29	56.58	104	80-120	1.000		08/31/18	EPA 6010B
Cadmium	<0.03909	108.6	111.1	102	80-120	1.000		08/31/18	EPA 6010B
Chromium	<0.1162	108.6	113.5	105	75-125	1.000		08/31/18	EPA 6010B
Cobalt	<0.03437	108.6	111.7	103	75-120	1.000		08/31/18	EPA 6010B
Copper	0.5693	108.6	112.4	103	77-125	1.000		08/31/18	EPA 6010B
Lead	<0.1338	108.6	110.5	102	75-125	1.000		08/31/18	EPA 6010B
Molybdenum	0.9215	108.6	113.9	104	75-120	1.000		08/31/18	EPA 6010B
Nickel	0.1017	108.6	111.4	102	75-125	1.000		08/31/18	EPA 6010B
Selenium	<0.4460	108.6	114.8	106	75-121	1.000		08/31/18	EPA 6010B
Silver	<0.07106	10.86	11.12	102	75-120	1.000		08/31/18	EPA 6010B
Thallium	0.5401	108.6	112.1	103	75-120	1.000		08/31/18	EPA 6010B
Thallium	<0.1907	108.6	104.1	96	75-125	25.00		09/11/18	EPA 6020
Vanadium	<0.1241	108.6	110.2	101	75-125	1.000		08/31/18	EPA 6010B
Zinc	15.15	108.6	125.6	102	75-125	1.000		08/31/18	EPA 6010B

Type: MSD Lab ID: QC945899

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Diln	Fac	Analyzed	Analysis
Antimony	118.4	126.1	106	75-120	0	20	1.000		08/31/18	EPA 6010B
Arsenic	118.4	125.9	106	80-124	1	20	1.000		08/31/18	EPA 6010B
Barium	118.4	130.4	103	75-125	1	20	1.000		08/31/18	EPA 6010B
Beryllium	59.20	61.67	104	80-120	0	20	1.000		08/31/18	EPA 6010B
Cadmium	118.4	121.1	102	80-120	0	20	1.000		08/31/18	EPA 6010B
Chromium	118.4	123.5	104	75-125	0	20	1.000		08/31/18	EPA 6010B
Cobalt	118.4	121.7	103	75-120	0	20	1.000		08/31/18	EPA 6010B
Copper	118.4	122.7	103	77-125	0	20	1.000		08/31/18	EPA 6010B
Lead	118.4	120.9	102	75-125	0	20	1.000		08/31/18	EPA 6010B
Molybdenum	118.4	124.3	104	75-120	0	20	1.000		08/31/18	EPA 6010B
Nickel	118.4	121.4	102	75-125	0	20	1.000		08/31/18	EPA 6010B
Selenium	118.4	125.3	106	75-121	0	20	1.000		08/31/18	EPA 6010B
Silver	11.84	12.15	103	75-120	0	20	1.000		08/31/18	EPA 6010B
Thallium	118.4	123.5	104	75-120	1	20	1.000		08/31/18	EPA 6010B
Thallium	118.4	114.1	96	75-125	1	20	25.00		09/11/18	EPA 6020
Vanadium	118.4	119.1	101	75-125	1	20	1.000		08/31/18	EPA 6010B
Zinc	118.4	134.5	101	75-125	1	20	1.000		08/31/18	EPA 6010B

RPD= Relative Percent Difference

PLT04-PLANT-WASHED				Detailed Results - Method 8290			
Client Details							
Client Sample ID: PLT04-PLANT-WASHED			Client Name: Enthalpy Berkeley				
Client Project ID: 302752			Sample Collection Date: 10/21			RRFs: CS3 CD	
Lab/Sample Details							
Lab Job #:		0818-730	Matrix:		Tissue	Date Received: 30-Aug-18	
Lab Sample ID:		0818-730_10123_013	Weight/Volume:		4.08	Date Extracted: 31-Aug-18	
QC Batch #:		10123	Split Factor:		1	Date Analyzed: 07-Sep-18	
Dilution:		-				Time Analyzed: 18:18:48	
							
Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.0421			ES 2,3,7,8-TCDD	98.8	
1,2,3,7,8-PeCDD	ND	0.0969			ES 1,2,3,7,8-PeCDD	100	
1,2,3,4,7,8-HxCDD	ND	0.0917			ES 1,2,3,4,7,8-HxCDD	87.8	
1,2,3,6,7,8-HxCDD	ND	0.0888			ES 1,2,3,6,7,8-HxCDD	85.8	
1,2,3,7,8,9-HxCDD	ND	0.0917			ES 1,2,3,7,8,9-HxCDD	83.8	
1,2,3,4,6,7,8-HpCDD	ND	0.120			ES 1,2,3,4,6,7,8-HpCDD	83.2	
OCDD	ND	0.165			ES OCDD	77.6	
2,3,7,8-TCDF	ND	0.0316			ES 2,3,7,8-TCDF	102	
1,2,3,7,8-PeCDF	ND	0.0352			ES 1,2,3,7,8-PeCDF	99.4	
2,3,4,7,8-PeCDF	ND	0.0375			ES 2,3,4,7,8-PeCDF	102.0	
1,2,3,4,7,8-HxCDF	ND	0.0385			ES 1,2,3,4,7,8-HxCDF	85.5	
1,2,3,6,7,8-HxCDF	ND	0.0395			ES 1,2,3,6,7,8-HxCDF	85.1	
2,3,4,6,7,8-HxCDF	ND	0.0398			ES 2,3,4,6,7,8-HxCDF	84.4	
1,2,3,7,8,9-HxCDF	ND	0.0525			ES 1,2,3,7,8,9-HxCDF	90.0	
1,2,3,4,6,7,8-HpCDF	ND	0.0420			ES 1,2,3,4,6,7,8-HpCDF	86.1	
1,2,3,4,7,8,9-HpCDF	ND	0.0591			ES 1,2,3,4,7,8,9-HpCDF	87.7	
OCDF	ND	0.100			ES OCDF	82.6	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	105	
Total TCDDs	ND	0.0421	0.603		CS 12347-PeCDD	110	
Total PeCDDs	ND	0.0969	ND		CS 12346-PeCDF	103	
Total HxCDDs	ND	0.0931	ND		CS 123469-HxCDF	102	
Total HpCDDs	ND	0.120	ND		CS 1234689-HpCDF	93.8	
					AS 1368-TCDD	106	
Total TCDFs	ND	0.0316	ND		AS 1368-TCDF	104	
Total PeCDFs	ND	0.0316	ND				
Total HxCDFs	ND	0.0419	ND				
Total HpCDFs	ND	0.0461	ND				
Total PCDD/PCDFs	ND		0.603				

PLT04-PLANT-WASHED				Detailed Results - Method 8290			
Client Details							
Client Sample ID: PLT04-PLANT-WASHED			Client Name: Enthalpy Berkeley				
Client Project ID: 302752			Sample Collection Date: 10/21			RRFs: CS3 CD	
Lab/Sample Details							
Lab Job #:		0818-730	Matrix:		Tissue	Date Received: 30-Aug-18	
Lab Sample ID:		0818-730_10123_014	Weight/Volume:		2.10	Date Extracted: 31-Aug-18	
QC Batch #:		10123	Split Factor:		1	Date Analyzed: 07-Sep-18	
Dilution:		-				Time Analyzed: 19:07:50	
							
Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.202			ES 2,3,7,8-TCDD	96.9	
1,2,3,7,8-PeCDD	ND	0.177			ES 1,2,3,7,8-PeCDD	98.9	
1,2,3,4,7,8-HxCDD	ND	0.241			ES 1,2,3,4,7,8-HxCDD	86.2	
1,2,3,6,7,8-HxCDD	ND	0.245			ES 1,2,3,6,7,8-HxCDD	87.0	
1,2,3,7,8,9-HxCDD	ND	0.247			ES 1,2,3,7,8,9-HxCDD	85.7	
1,2,3,4,6,7,8-HpCDD	ND	0.270			ES 1,2,3,4,6,7,8-HpCDD	83.4	
OCDD	ND	0.207			ES OCDD	81.2	
2,3,7,8-TCDF	ND	0.0591			ES 2,3,7,8-TCDF	91.3	
1,2,3,7,8-PeCDF	ND	0.0812			ES 1,2,3,7,8-PeCDF	96.1	
2,3,4,7,8-PeCDF	ND	0.0864			ES 2,3,4,7,8-PeCDF	95.3	
1,2,3,4,7,8-HxCDF	ND	0.0920			ES 1,2,3,4,7,8-HxCDF	85.9	
1,2,3,6,7,8-HxCDF	ND	0.0869			ES 1,2,3,6,7,8-HxCDF	87.3	
2,3,4,6,7,8-HxCDF	ND	0.0963			ES 2,3,4,6,7,8-HxCDF	85.1	
1,2,3,7,8,9-HxCDF	ND	0.115			ES 1,2,3,7,8,9-HxCDF	95.9	
1,2,3,4,6,7,8-HpCDF	ND	0.117			ES 1,2,3,4,6,7,8-HpCDF	87.4	
1,2,3,4,7,8,9-HpCDF	ND	0.173			ES 1,2,3,4,7,8,9-HpCDF	88.8	
OCDF	ND	0.200			ES OCDF	82.0	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	100	
Total TCDDs	ND	0.202	0.788		CS 12347-PeCDD	110	
Total PeCDDs	ND	0.177	ND		CS 12346-PeCDF	98.3	
Total HxCDDs	ND	0.239	ND		CS 123469-HxCDF	104	
Total HpCDDs	ND	0.270	ND		CS 1234689-HpCDF	69.4	
					AS 1368-TCDD	101	
Total TCDFs	ND	0.0591	ND		AS 1368-TCDF	95.8	
Total PeCDFs	ND	0.0752	ND				
Total HxCDFs	ND	0.0924	ND				
Total HpCDFs	ND	0.128	ND				
Total PCDD/PCDFs	ND		0.788				

PLT04-PLANT-WASHED				Detailed Results - Method 8290			
Client Details							
Client Sample ID: PLT04-PLANT-WASHED			Client Name: Enthalpy Berkeley				
Client Project ID: 302752			Sample Collection Date: 10/21			RRFs: CS3 CD	
Lab/Sample Details							
Lab Job #:	0818-730	Matrix:	Tissue	Date Received:	30-Aug-18		
Lab Sample ID:	0818-730_10123_015	Weight/Volume:	2.52	Date Extracted:	31-Aug-18		
QC Batch #:	10123	Split Factor:	1	Date Analyzed:	07-Sep-18		
Dilution:	-			Time Analyzed:	19:56:53		
Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.0727			ES 2,3,7,8-TCDD	91.7	
1,2,3,7,8-PeCDD	ND	0.116			ES 1,2,3,7,8-PeCDD	97.0	
1,2,3,4,7,8-HxCDD	ND	0.195			ES 1,2,3,4,7,8-HxCDD	85.1	
1,2,3,6,7,8-HxCDD	ND	0.187			ES 1,2,3,6,7,8-HxCDD	83.6	
1,2,3,7,8,9-HxCDD	ND	0.200			ES 1,2,3,7,8,9-HxCDD	84.3	
1,2,3,4,6,7,8-HpCDD	ND	0.170			ES 1,2,3,4,6,7,8-HpCDD	80.7	
OCDD	ND	0.452			ES OCDD	74.9	
2,3,7,8-TCDF	ND	0.0406			ES 2,3,7,8-TCDF	94.5	
1,2,3,7,8-PeCDF	ND	0.0403			ES 1,2,3,7,8-PeCDF	96.9	
2,3,4,7,8-PeCDF	ND	0.0434			ES 2,3,4,7,8-PeCDF	98.2	
1,2,3,4,7,8-HxCDF	ND	0.0639			ES 1,2,3,4,7,8-HxCDF	83.6	
1,2,3,6,7,8-HxCDF	ND	0.0589			ES 1,2,3,6,7,8-HxCDF	84.7	
2,3,4,6,7,8-HxCDF	ND	0.0620			ES 2,3,4,6,7,8-HxCDF	84.3	
1,2,3,7,8,9-HxCDF	ND	0.0858			ES 1,2,3,7,8,9-HxCDF	89.0	
1,2,3,4,6,7,8-HpCDF	ND	0.0836			ES 1,2,3,4,6,7,8-HpCDF	82.7	
1,2,3,4,7,8,9-HpCDF	ND	0.120			ES 1,2,3,4,7,8,9-HpCDF	84.9	
OCDF	ND	0.143			ES OCDF	79.3	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	95.9	
Total TCDDs	ND	0.0727	ND		CS 12347-PeCDD	109	
Total PeCDDs	ND	0.116	ND		CS 12346-PeCDF	96.8	
Total HxCDDs	ND	0.195	ND		CS 123469-HxCDF	101.0	
Total HpCDDs	ND	0.170	ND		CS 1234689-HpCDF	84.7	
					AS 1368-TCDD	100	
Total TCDFs	ND	0.0406	ND		AS 1368-TCDF	95.3	
Total PeCDFs	ND	0.0478	ND				
Total HxCDFs	ND	0.0629	ND				
Total HpCDFs	ND	0.0916	ND				
Total PCDD/PCDFs	ND		ND				

PLT04-PLANT-WASHED				Detailed Results - Method 8290			
Client Details							
Client Sample ID: PLT04-PLANT-WASHED			Client Name: Enthalpy Berkeley				
Client Project ID: 302752			Sample Collection Date: 10/21			RRFs: CS3 CD	
Lab/Sample Details							
Lab Job #:	0818-730	Matrix:	Tissue	Date Received:	30-Aug-18		
Lab Sample ID:	0818-730_10123_016	Weight/Volume:	2.05	Date Extracted:	31-Aug-18		
QC Batch #:	10123	Split Factor:	1	Date Analyzed:	07-Sep-18		
Dilution:	-			Time Analyzed:	20:45:56		
Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.101			ES 2,3,7,8-TCDD	93.2	
1,2,3,7,8-PeCDD	ND	0.176			ES 1,2,3,7,8-PeCDD	97.4	
1,2,3,4,7,8-HxCDD	ND	0.161			ES 1,2,3,4,7,8-HxCDD	87.8	
1,2,3,6,7,8-HxCDD	ND	0.179			ES 1,2,3,6,7,8-HxCDD	83.7	
1,2,3,7,8,9-HxCDD	ND	0.176			ES 1,2,3,7,8,9-HxCDD	82.6	
1,2,3,4,6,7,8-HpCDD	ND	0.289			ES 1,2,3,4,6,7,8-HpCDD	83.2	
OCDD	ND	0.344			ES OCDD	77.7	
2,3,7,8-TCDF	ND	0.0605			ES 2,3,7,8-TCDF	92.2	
1,2,3,7,8-PeCDF	ND	0.0669			ES 1,2,3,7,8-PeCDF	85.0	
2,3,4,7,8-PeCDF	ND	0.0681			ES 2,3,4,7,8-PeCDF	84.5	
1,2,3,4,7,8-HxCDF	ND	0.0930			ES 1,2,3,4,7,8-HxCDF	80.2	
1,2,3,6,7,8-HxCDF	ND	0.0842			ES 1,2,3,6,7,8-HxCDF	82.5	
2,3,4,6,7,8-HxCDF	ND	0.0937			ES 2,3,4,6,7,8-HxCDF	80.3	
1,2,3,7,8,9-HxCDF	ND	0.100			ES 1,2,3,7,8,9-HxCDF	98.1	
1,2,3,4,6,7,8-HpCDF	ND	0.074			ES 1,2,3,4,6,7,8-HpCDF	84.8	
1,2,3,4,7,8,9-HpCDF	ND	0.107			ES 1,2,3,4,7,8,9-HpCDF	86.6	
OCDF	ND	0.206			ES OCDF	82.1	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	98.5	
Total TCDDs	0.522		0.522		CS 12347-PeCDD	96.6	
Total PeCDDs	ND	0.176	ND		CS 12346-PeCDF	96.3	
Total HxCDDs	ND	0.166	ND		CS 123469-HxCDF	98.5	
Total HpCDDs	ND	0.289	ND		CS 1234689-HpCDF	71.8	
					AS 1368-TCDD	101	
Total TCDFs	ND	0.0605	ND		AS 1368-TCDF	96.7	
Total PeCDFs	ND	0.0850	ND				
Total HxCDFs	ND	0.0880	ND				
Total HpCDFs	ND	0.0808	ND				
Total PCDD/PCDFs	0.522		0.522				

PLT04-PLANT-UNWASHED				Detailed Results - Method 8290			
Client Details							
Client Sample ID: PLT04-PLANT-UNWASHED			Client Name: Enthalpy Berkeley				
Client Project ID: 302752			Sample Collection Date: 10/21			RRFs: CS3 CD	
Lab/Sample Details							
Lab Job #:	0818-730	Matrix:	Tissue	Date Received:	30-Aug-18		
Lab Sample ID:	0818-730_10123_017	Weight/Volume:	3.34	Date Extracted:	31-Aug-18		
QC Batch #:	10123	Split Factor:	1	Date Analyzed:	07-Sep-18		
Dilution:	-			Time Analyzed:	21:35:04		
Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.0556			ES 2,3,7,8-TCDD	94.7	
1,2,3,7,8-PeCDD	ND	0.108			ES 1,2,3,7,8-PeCDD	99.1	
1,2,3,4,7,8-HxCDD	ND	0.100			ES 1,2,3,4,7,8-HxCDD	90.6	
1,2,3,6,7,8-HxCDD	ND	0.102			ES 1,2,3,6,7,8-HxCDD	93.9	
1,2,3,7,8,9-HxCDD	ND	0.115			ES 1,2,3,7,8,9-HxCDD	85.9	
1,2,3,4,6,7,8-HpCDD	ND	0.167			ES 1,2,3,4,6,7,8-HpCDD	90.8	
OCDD	ND	0.171			ES OCDD	82.3	
2,3,7,8-TCDF	ND	0.0276			ES 2,3,7,8-TCDF	98.6	
1,2,3,7,8-PeCDF	ND	0.0377			ES 1,2,3,7,8-PeCDF	96.1	
2,3,4,7,8-PeCDF	ND	0.0380			ES 2,3,4,7,8-PeCDF	98.3	
1,2,3,4,7,8-HxCDF	ND	0.0758			ES 1,2,3,4,7,8-HxCDF	87.3	
1,2,3,6,7,8-HxCDF	ND	0.0687			ES 1,2,3,6,7,8-HxCDF	89.0	
2,3,4,6,7,8-HxCDF	ND	0.0762			ES 2,3,4,6,7,8-HxCDF	86.8	
1,2,3,7,8,9-HxCDF	ND	0.0893			ES 1,2,3,7,8,9-HxCDF	95.2	
1,2,3,4,6,7,8-HpCDF	ND	0.0766			ES 1,2,3,4,6,7,8-HpCDF	85.2	
1,2,3,4,7,8,9-HpCDF	ND	0.100			ES 1,2,3,4,7,8,9-HpCDF	94.4	
OCDF	ND	0.104			ES OCDF	86.7	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	98.4	
Total TCDDs	0.274		0.274		CS 12347-PeCDD	105	
Total PeCDDs	ND	0.108	ND		CS 12346-PeCDF	97.8	
Total HxCDDs	ND	0.0995	ND		CS 123469-HxCDF	105	
Total HpCDDs	ND	0.167	ND		CS 1234689-HpCDF	72.9	
					AS 1368-TCDD	105	
Total TCDFs	ND	0.0276	ND		AS 1368-TCDF	99.0	
Total PeCDFs	ND	0.0335	ND				
Total HxCDFs	ND	0.0735	ND				
Total HpCDFs	ND	0.0809	ND				
Total PCDD/PCDFs	0.274		0.274				

PLT04-PLANT-UNWASHED**Detailed Results - Method 8290****Client Details****Client Sample ID:** PLT04-PLANT-UNWASHED**Client Name:** Enthalpy Berkeley**Client Project ID:** 302752**Sample Collection Date:** 10/21**RRFs:** CS3 CD**Lab/Sample Details**

Lab Job #:	0818-730	Matrix:	Tissue	Date Received:	30-Aug-18
Lab Sample ID:	0818-730_10123_018	Weight/Volume:	3.47	Date Extracted:	31-Aug-18
QC Batch #:	10123	Split Factor:	1	Date Analyzed:	07-Sep-18
Dilution:	-			Time Analyzed:	22:24:07



Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.0587			ES 2,3,7,8-TCDD	99.9	
1,2,3,7,8-PeCDD	ND	0.115			ES 1,2,3,7,8-PeCDD	97.8	
1,2,3,4,7,8-HxCDD	ND	0.116			ES 1,2,3,4,7,8-HxCDD	88.6	
1,2,3,6,7,8-HxCDD	ND	0.118			ES 1,2,3,6,7,8-HxCDD	87.6	
1,2,3,7,8,9-HxCDD	ND	0.123			ES 1,2,3,7,8,9-HxCDD	88.1	
1,2,3,4,6,7,8-HpCDD	ND	0.124			ES 1,2,3,4,6,7,8-HpCDD	86.3	
OCDD	ND	0.196			ES OCDD	79.3	
2,3,7,8-TCDF	ND	0.0301			ES 2,3,7,8-TCDF	98.4	
1,2,3,7,8-PeCDF	ND	0.0373			ES 1,2,3,7,8-PeCDF	94.7	
2,3,4,7,8-PeCDF	ND	0.0392			ES 2,3,4,7,8-PeCDF	95.2	
1,2,3,4,7,8-HxCDF	ND	0.0644			ES 1,2,3,4,7,8-HxCDF	86.1	
1,2,3,6,7,8-HxCDF	ND	0.0631			ES 1,2,3,6,7,8-HxCDF	87.7	
2,3,4,6,7,8-HxCDF	ND	0.0659			ES 2,3,4,6,7,8-HxCDF	86.7	
1,2,3,7,8,9-HxCDF	ND	0.0859			ES 1,2,3,7,8,9-HxCDF	92.0	
1,2,3,4,6,7,8-HpCDF	ND	0.0737			ES 1,2,3,4,6,7,8-HpCDF	88.4	
1,2,3,4,7,8,9-HpCDF	ND	0.0987			ES 1,2,3,4,7,8,9-HpCDF	93.5	
OCDF	ND	0.113			ES OCDF	82.4	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	105	
Total TCDDs	0.359		0.359		CS 12347-PeCDD	105	
Total PeCDDs	ND	0.115	ND		CS 12346-PeCDF	98.2	
Total HxCDDs	ND	0.116	ND		CS 123469-HxCDF	106	
Total HpCDDs	ND	0.124	ND		CS 1234689-HpCDF	73.8	
					AS 1368-TCDD	102	
Total TCDFs	ND	0.0301	ND		AS 1368-TCDF	98.1	
Total PeCDFs	ND	0.0450	ND				
Total HxCDFs	ND	0.0676	ND				
Total HpCDFs	ND	0.0795	ND				
Total PCDD/PCDFs	0.359		0.359				

PLT04-PLANT-UNWASHED				Detailed Results - Method 8290			
Client Details							
Client Sample ID: PLT04-PLANT-UNWASHED			Client Name: Enthalpy Berkeley				
Client Project ID: 302752			Sample Collection Date: 10/21			RRFs: CS3 CD	
Lab/Sample Details							
Lab Job #:	0818-730	Matrix:	Tissue	Date Received:	30-Aug-18		
Lab Sample ID:	0818-730_10123_019	Weight/Volume:	4.00	Date Extracted:	31-Aug-18		
QC Batch #:	10123	Split Factor:	1	Date Analyzed:	07-Sep-18		
Dilution:	-			Time Analyzed:	23:13:16		
Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.0507			ES 2,3,7,8-TCDD	102	
1,2,3,7,8-PeCDD	ND	0.0796			ES 1,2,3,7,8-PeCDD	102	
1,2,3,4,7,8-HxCDD	ND	0.0663			ES 1,2,3,4,7,8-HxCDD	84.8	
1,2,3,6,7,8-HxCDD	ND	0.0722			ES 1,2,3,6,7,8-HxCDD	88.7	
1,2,3,7,8,9-HxCDD	ND	0.0715			ES 1,2,3,7,8,9-HxCDD	81.9	
1,2,3,4,6,7,8-HpCDD	ND	0.0897			ES 1,2,3,4,6,7,8-HpCDD	86.3	
OCDD	ND	0.134			ES OCDD	80.4	
2,3,7,8-TCDF	ND	0.0320			ES 2,3,7,8-TCDF	101	
1,2,3,7,8-PeCDF	ND	0.0351			ES 1,2,3,7,8-PeCDF	98.3	
2,3,4,7,8-PeCDF	ND	0.0332			ES 2,3,4,7,8-PeCDF	101.0	
1,2,3,4,7,8-HxCDF	ND	0.0512			ES 1,2,3,4,7,8-HxCDF	84.1	
1,2,3,6,7,8-HxCDF	ND	0.0460			ES 1,2,3,6,7,8-HxCDF	85.3	
2,3,4,6,7,8-HxCDF	ND	0.0520			ES 2,3,4,6,7,8-HxCDF	84.1	
1,2,3,7,8,9-HxCDF	ND	0.0596			ES 1,2,3,7,8,9-HxCDF	92.0	
1,2,3,4,6,7,8-HpCDF	ND	0.0478			ES 1,2,3,4,6,7,8-HpCDF	85.1	
1,2,3,4,7,8,9-HpCDF	ND	0.0637			ES 1,2,3,4,7,8,9-HpCDF	89.7	
OCDF	ND	0.0710			ES OCDF	83.1	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	107	
Total TCDDs	0.390		0.390		CS 12347-PeCDD	110	
Total PeCDDs	ND	0.0796	ND		CS 12346-PeCDF	102	
Total HxCDDs	ND	0.0656	ND		CS 123469-HxCDF	102	
Total HpCDDs	ND	0.0897	ND		CS 1234689-HpCDF	94.0	
					AS 1368-TCDD	105	
Total TCDFs	ND	0.0320	ND		AS 1368-TCDF	103	
Total PeCDFs	ND	0.0328	ND				
Total HxCDFs	ND	0.0489	ND				
Total HpCDFs	ND	0.0518	ND				
Total PCDD/PCDFs	0.390		0.390				

PLT04-SOIL**Detailed Results - Method 8290****Client Details****Client Sample ID:** PLT04-SOIL**Client Name:** Enthalpy Berkeley**Client Project ID:** 302752**Sample Collection Date:** 08/12**RRFs:** CS3 AB**Lab/Sample Details**

Lab Job #:	0818-730	Matrix:	Soil	Date Received:	30-Aug-18
Lab Sample ID:	0818-730_10124_026	Weight/Volume:	11.7	Date Extracted:	05-Sep-18
QC Batch #:	10124	Split Factor:	1	Date Analyzed:	08-Sep-18
Dilution:	-			Time Analyzed:	11:26:07



Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.0310			ES 2,3,7,8-TCDD	88.6	
1,2,3,7,8-PeCDD	0.600				ES 1,2,3,7,8-PeCDD	96.4	
1,2,3,4,7,8-HxCDD	0.823				ES 1,2,3,4,7,8-HxCDD	74.6	
1,2,3,6,7,8-HxCDD	2.8				ES 1,2,3,6,7,8-HxCDD	75.5	
1,2,3,7,8,9-HxCDD	1.79				ES 1,2,3,7,8,9-HxCDD	72.8	
1,2,3,4,6,7,8-HpCDD	90.4				ES 1,2,3,4,6,7,8-HpCDD	78.7	
OCDD	941				ES OCDD	76.9	
2,3,7,8-TCDF	EMPC		0.426		ES 2,3,7,8-TCDF	75.6	
1,2,3,7,8-PeCDF	0.388				ES 1,2,3,7,8-PeCDF	96.7	
2,3,4,7,8-PeCDF	EMPC		0.812		ES 2,3,4,7,8-PeCDF	96.4	
1,2,3,4,7,8-HxCDF	0.978				ES 1,2,3,4,7,8-HxCDF	73.7	
1,2,3,6,7,8-HxCDF	EMPC		0.830		ES 1,2,3,6,7,8-HxCDF	72.6	
2,3,4,6,7,8-HxCDF	1.12				ES 2,3,4,6,7,8-HxCDF	76.2	
1,2,3,7,8,9-HxCDF	0.496				ES 1,2,3,7,8,9-HxCDF	84.2	
1,2,3,4,6,7,8-HpCDF	15.4				ES 1,2,3,4,6,7,8-HpCDF	77.9	
1,2,3,4,7,8,9-HpCDF	0.864				ES 1,2,3,4,7,8,9-HpCDF	78.6	
OCDF	46.1				ES OCDF	73.0	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37CI-2378-TCDD	97.9	
Total TCDDs	1.72		1.72		CS 12347-PeCDD	106	
Total PeCDDs	4.09		4.56		CS 12346-PeCDF	104	
Total HxCDDs	20.0		20.0		CS 123469-HxCDF	94.3	
Total HpCDDs	250		250		CS 1234689-HpCDF	89.0	
					AS 1368-TCDD	81.3	
Total TCDFs	9.68		10.5		AS 1368-TCDF	85.3	
Total PeCDFs	9.08		10.2				
Total HxCDFs	18.2		19.1				
Total HpCDFs	50.1		50.1				
Total PCDD/PCDFs	1350		1350				

PLT04-SOIL**Detailed Results - Method 8290****Client Details****Client Sample ID:** PLT04-SOIL**Client Name:** Enthalpy Berkeley**Client Project ID:** 302752**Sample Collection Date:** 08/12**RRFs:** CS3 AB**Lab/Sample Details**

Lab Job #:	0818-730	Matrix:	Soil	Date Received:	30-Aug-18
Lab Sample ID:	0818-730_10124_027	Weight/Volume:	12.4	Date Extracted:	05-Sep-18
QC Batch #:	10124	Split Factor:	1	Date Analyzed:	08-Sep-18
Dilution:	-			Time Analyzed:	12:15:17



Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.0204			ES 2,3,7,8-TCDD	105	
1,2,3,7,8-PeCDD	EMPC		0.654		ES 1,2,3,7,8-PeCDD	101	
1,2,3,4,7,8-HxCDD	0.841				ES 1,2,3,4,7,8-HxCDD	80.0	
1,2,3,6,7,8-HxCDD	2.74				ES 1,2,3,6,7,8-HxCDD	79.1	
1,2,3,7,8,9-HxCDD	1.82				ES 1,2,3,7,8,9-HxCDD	75.8	
1,2,3,4,6,7,8-HpCDD	69.8				ES 1,2,3,4,6,7,8-HpCDD	80.0	
OCDD	619				ES OCDD	80.5	
2,3,7,8-TCDF	EMPC		0.475		ES 2,3,7,8-TCDF	109	
1,2,3,7,8-PeCDF	0.429				ES 1,2,3,7,8-PeCDF	110	
2,3,4,7,8-PeCDF	0.887				ES 2,3,4,7,8-PeCDF	110	
1,2,3,4,7,8-HxCDF	1.01				ES 1,2,3,4,7,8-HxCDF	76.9	
1,2,3,6,7,8-HxCDF	0.934				ES 1,2,3,6,7,8-HxCDF	75.8	
2,3,4,6,7,8-HxCDF	1.27				ES 2,3,4,6,7,8-HxCDF	80.3	
1,2,3,7,8,9-HxCDF	EMPC		0.689		ES 1,2,3,7,8,9-HxCDF	82.5	
1,2,3,4,6,7,8-HpCDF	13.1				ES 1,2,3,4,6,7,8-HpCDF	79.5	
1,2,3,4,7,8,9-HpCDF	0.784				ES 1,2,3,4,7,8,9-HpCDF	82.0	
OCDF	24.5				ES OCDF	79.5	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37CI-2378-TCDD	119	
Total TCDDs	2.17		2.17		CS 12347-PeCDD	119	
Total PeCDDs	4.72		6.33		CS 12346-PeCDF	123	
Total HxCDDs	21.0		21.0		CS 123469-HxCDF	100	
Total HpCDDs	125		125		CS 1234689-HpCDF	92.6	
					AS 1368-TCDD	104	
Total TCDFs	9.49		10.5		AS 1368-TCDF	112	
Total PeCDFs	11.5		11.5				
Total HxCDFs	17.7		18.4				
Total HpCDFs	34.9		34.9				
Total PCDD/PCDFs	870		873				

PLT04-SOIL**Detailed Results - Method 8290****Client Details****Client Sample ID:** PLT04-SOIL**Client Name:** Enthalpy Berkeley**Client Project ID:** 302752**Sample Collection Date:** 08/12**RRFs:** CS3 AB**Lab/Sample Details**

Lab Job #:	0818-730	Matrix:	Soil	Date Received:	30-Aug-18
Lab Sample ID:	0818-730_10124_028	Weight/Volume:	12.5	Date Extracted:	05-Sep-18
QC Batch #:	10124	Split Factor:	1	Date Analyzed:	08-Sep-18
Dilution:	-			Time Analyzed:	13:04:21



Analyte	Conc. (pg/g)	DLpg/g	EMPC pg/g	Qualifiers	Standard	ES Recoveries	Qualifiers
2,3,7,8-TCDD	ND	0.0216			ES 2,3,7,8-TCDD	104	
1,2,3,7,8-PeCDD	EMPC		0.614		ES 1,2,3,7,8-PeCDD	103	
1,2,3,4,7,8-HxCDD	0.747				ES 1,2,3,4,7,8-HxCDD	80.2	
1,2,3,6,7,8-HxCDD	2.58				ES 1,2,3,6,7,8-HxCDD	77.4	
1,2,3,7,8,9-HxCDD	1.68				ES 1,2,3,7,8,9-HxCDD	78.2	
1,2,3,4,6,7,8-HpCDD	62.6				ES 1,2,3,4,6,7,8-HpCDD	83.2	
OCDD	534				ES OCDD	81.2	
2,3,7,8-TCDF	0.413				ES 2,3,7,8-TCDF	115	
1,2,3,7,8-PeCDF	EMPC		0.407		ES 1,2,3,7,8-PeCDF	115	
2,3,4,7,8-PeCDF	0.876				ES 2,3,4,7,8-PeCDF	116	
1,2,3,4,7,8-HxCDF	0.941				ES 1,2,3,4,7,8-HxCDF	77.6	
1,2,3,6,7,8-HxCDF	0.833				ES 1,2,3,6,7,8-HxCDF	77.7	
2,3,4,6,7,8-HxCDF	1.14				ES 2,3,4,6,7,8-HxCDF	79.6	
1,2,3,7,8,9-HxCDF	0.535				ES 1,2,3,7,8,9-HxCDF	83.6	
1,2,3,4,6,7,8-HpCDF	13.1				ES 1,2,3,4,6,7,8-HpCDF	80.1	
1,2,3,4,7,8,9-HpCDF	0.737				ES 1,2,3,4,7,8,9-HpCDF	80.4	
OCDF	24.3				ES OCDF	76.2	
Totals	Conc. pg/g	DLpg/g	EMPC pg/g		Standard	CS/AS Recoveries	
					CS 37CI-2378-TCDD	116	
Total TCDDs	2.23		2.23		CS 12347-PeCDD	118	
Total PeCDDs	3.37		5.02		CS 12346-PeCDF	127	
Total HxCDDs	16.5		16.5		CS 123469-HxCDF	101	
Total HpCDDs	112		112		CS 1234689-HpCDF	93.3	
					AS 1368-TCDD	106	
Total TCDFs	8.77		9.43		AS 1368-TCDF	118	
Total PeCDFs	10.6		11.0				
Total HxCDFs	17.8		17.8				
Total HpCDFs	34.7		34.7				
Total PCDD/PCDFs	764		767				

General Reporting Notes – Data Qualifiers

The following are general reporting notes that are applicable to all Enthalpy Analytical, Inc.-Wilmington, NC data reports, unless specifically noted otherwise.

General Data Qualifiers / Data Attributes

- B – The analyte was found in the method blank, at a concentration that was at least 10% of the concentration in the sample.
- C – Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
- E – The reported concentration exceeds the calibration range (upper point of the calibration curve).
- EMPC – Represents an estimated maximum possible concentration. EMPCs arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), or where there is a co-eluting interference.
- J – Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve).
- ND – Indicates a non-detect.
- NR – Indicates a value that is not reportable.
- PR – Due to interference, the associated congener is poorly resolved.
- DI – Indicates the presence of a quantitative interference.
- SI – Denotes “Single Ion Mode” and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
- U – The analyte was not detected. The Estimated Detection Limit (EDL) may be reported for this analyte.
- V – The labeled standard recovery was found to be outside of the method control limits.

DRBC/TMDL Specific Data Qualifiers / Data Attributes

- J – The reported result is an estimate. The value is less than the minimum calibration level but greater than the Estimated Detection Limit (EDL).
- U – The analyte was not detected in the sample at the Estimated Detection Limit (EDL).
- E – The reported concentration is an estimate. The value exceeds the upper calibration range (upper point of the calibration curve).

General Reporting Notes – Data Qualifiers

- D – Dilution Data. Result was obtained from the analysis of a dilution.
- B – Analyte found in the sample and associated method blank.
- Cxx – Co-elutes with the indicated congener, data is reported under the lowest IUPAC congener. ‘xx’ denotes the IUPAC number with the lowest numerical designated congener.
- NR – Analyte is not reportable because of problems in sample preparation or analysis.
- V – Labeled standard recovery is not within method control limits.
- X – Results from re-injection/repeat/second-column analysis.
- EMPC – Estimated Maximum Possible Concentration. Indicates that a peak is identified but did not meet the method specified ion-abundance ratio.

Lab Identifiers

- AR – Indicates use of the archived portion of the sample extract.
- CU – Indicates a sample that required additional clean-up prior to HRMS injection/processing.
- D – Indicates a dilution of the sample extract. The number that follows the “D” indicates the dilution factor.
- DE – Indicates a dilution performed with the addition of ES (Extraction Standard) solution.
- DUP – Designation for a duplicate sample.
- MS – Designation for a matrix spike.
- MSD – Designation for a matrix spike duplicate.
- RJ – Indicates a reinjection of the sample extract.
- S – Indicates a sample split. The number that follows the “S” indicates the split factor.