

Appendix

Appendix E Phase II Soil Sampling

Appendix

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TECHNICAL MEMORANDUM

DATE January 14, 2022

TO City of Irvine

ADDRESS 6427 Oak Canyon, Building 1
Irvine, California 92618

CONTACT Reza Jafari, Senior Project Manager

FROM Denise Clendening, Ph.D.

SUBJECT Phase II Irvine Animal Care Center & Operations Support Facility Expansion/Renovation

PROJECT NUMBER COI-53.0

BACKGROUND

PlaceWorks prepared and submitted to the City of Irvine a Transaction Screen Process Report also known as a modified Phase 0 (Report) to assess the Irvine Animal Care Center and Operations Support Facility Expansion Renovation project site in March 2020. The project involves the expansion and renovation of onsite facilities for the Irvine Animal Care Center and Operations Support Facility. Project development plans include a 5,000-square-foot annex building to the existing operations support facility, a fuel tank farm area, and maintenance shop structures. The parking areas would be resurfaced and restriped, and a dog park would be converted to a staff parking lot. Project development would upgrade and renovate the current Irvine Animal Care Center building and facilities, including 13,000 square feet of minor interior renovations and 3,000 square feet of major interior renovation. The project would also include the construction of 13,000 square feet of new building space for the Irvine Animal Care Center.

The 2020 Report identified areas where soil disturbance activities were planned and where areas of potential environmental concern were located to determine where soil sampling may be needed based on the project.

Site Description

The approximately 18.7-acre project site is currently developed with and operates as the Irvine Animal Care Center and the Operations Support Facility. The Irvine Animal Care Center portion of the site (APN 466-01-135) is developed with various buildings and structures, outdoor support spaces, and a surface parking lot (Figures 1-3). The Operations Facility portion of the site (APNs 466-01-123, -133, -138, and -114) is developed with City's Public Works administrative offices, fleet buildings, operations facilities, surface parking lots, and Irvine Central Bark (a dog park). Overall, the site contains 119 employee and visitor

parking spaces and 180 fleet vehicle spaces. Other site improvements across the entire project site include driveways, walkways, block walls and fences, and landscape improvements.

The project site and its immediate vicinity are within the Oak Creek Planning Area (PA12), which is generally bounded by the I-5 freeway to the north, Sand Canyon Avenue to the east, agriculture uses and the San Diego Freeway (I-405) to the south, and Jeffrey Road to the west. The zoning designations of the project site are 6.1 (Institutional) and 5.4B (General Industrial). The General Plan land use designations are Educational Facility and Research/Industrial.

SITE HISTORY

Historically, the project site was developed for agricultural purposes (orchards and row crops) from at least 1938 to about the 1980s. The northwestern portion of the site was used as an orchard from at least and the southeastern area of the site was used for row crops during that time period. Structures first appeared on the site in the 1980s and portions of the site remained agricultural until the 1990s. The Animal Care Center and Operations Support Facility have been in operation since 1984.

The environmental site assessment report prepared by PlaceWorks in 2020 called a Transaction Screen Process Report (Phase 0) identified areas of potential environmental concern due to historic land uses including: an aboveground petroleum storage tank, an aboveground waste oil tank, three hazardous chemical storage areas, a household hazardous waste collection area, vehicle lifts, underground storage tanks, and residual pesticides due to historic agricultural usage of the site. Areas of potential environmental concern are shown in Figure 4. Not all items identified are in the areas where soil disturbance is planned.

Objectives of the Phase II Sampling

The overall objectives of this Phase II are to:

- Evaluate if there have been releases at the site from the areas identified as being a potential concern in the 2020 assessment.
- Collect samples in areas of potential concern where soil disturbance activities are planned.
- Estimate the potential threat to public health and/or the environment posed by hazardous constituents, if any, at the project site using a residential land-use scenario.

Field Sampling

Table 1 is a summary table of the sampling and analysis program, and Figure 5 shows the sample locations. Soil samples were collected from surface to 0.5 feet and 2.5 feet, and 5 feet below ground surface (bgs) using either a hand auger or truck-mounted direct push drill rig (Geoprobe™) at five locations on the site on November 5, 2021. Samples were collected near hazardous waste storage, near the aboveground storage tanks and in the vicinity of the underground storage tanks. Select soil samples were analyzed by an analytical laboratory accredited by the California Department of Public Health (CDPH) Environmental Laboratory Accreditation Program (ELAP) for organochlorine pesticides by EPA Method 8081A, total petroleum hydrocarbons by EPA 8015M gasoline range constituents by EPA Method 8015, CAM-17 metals by EPA Method 6010B/7471, and arsenic by EPA Method 6010B.

All equipment that came into contact with the soil was decontaminated consistently to assure the quality of samples collected. Decontamination was conducted prior to and after each use of a piece of equipment. All sampling devices used were decontaminated using the following procedures:

- Non-phosphate detergent and distilled water wash, using a brush.
- Initial deionized/distilled water rinse; and
- Final deionized/distilled water rinse.

Soil cuttings were immediately backfilled into the original boring and decontamination water was disposed of in accordance with the Office of Emergency and Remedial Response (OERR) Directive 9345.3-02 (1991). Used personal protection equipment (PPE) were double bagged and placed in a municipal refuse dumpster.

Results

Organochlorine pesticide concentrations from soil are summarized in Table 2, analyzed by EPA Method 8081A. All other analytical methods were below levels of concern, and all laboratory results are included as an attachment.

Pesticides

Five surface soil samples were analyzed for organochlorine pesticides (OCPs) collected from across the site to assess for potential residual pesticides from historic agricultural usage of the site. One OCP, 4,4'-DDE was detected in all five soil samples. Concentrations of 4,4'-DDE ranged from 0.0051 milligram per kilogram (mg/kg) to 0.033 mg/kg. The concentrations of 4,4'-DDE were compared to the Department of Toxic Substances Control (DTSC) modified screening levels (SLs) and EPA Region 9 Regional Screening Levels (RSLs) for residential exposure for 4,4'-DDE. The health-based SL is 2.0 mg/kg indicating the detected concentrations at the project site are significantly below the health-based level of concern for residential land use exposure.

CAM-17 Metals

Metals were analyzed for in three soil samples and arsenic was analyzed for discretely in an additional four soil samples. Metal concentrations were compared to typical background concentrations for the area and with DTSC SLs in metal concentrations exceeded background levels. Arsenic may be elevated at sites due to agricultural usage, was not elevated and found at concentrations ranging from nondetect to 2.6 mg/kg. The health-based screening level that the DTSC uses for southern California for residential sites is 12 mg/kg.

Total Petroleum Hydrocarbons

The four soil samples that were analyzed for TPH as gasoline and one sample analyzed TPH carbon chain C4-C40 in the vicinity of the underground storage tanks were all below laboratory detection limits.

Conclusion

Based on the focused field sampling and analysis at the project site where soil disturbance is planned in areas most likely to have been impacted by land uses, the analytical results show that there have been no releases at the site of concern. All concentrations are below health-based screening levels based on a conservative health protective exposure scenario of residential land use. One pesticide, 4,4'-DDE was detected at very low concentrations in some of the surface soil samples tested.





Based on our understanding of the site PlaceWorks concludes that further assessment of the site is not necessary. The site has found to be not significantly impacted and risks to human health and the environment are found to be within acceptable levels based on the conservative screening-level risk screening.

If you have any questions please do not hesitate to contact the undersigned.

Sincerely,

PLACEWORKS


Denise Clendening, Ph.D.
Associate Principal

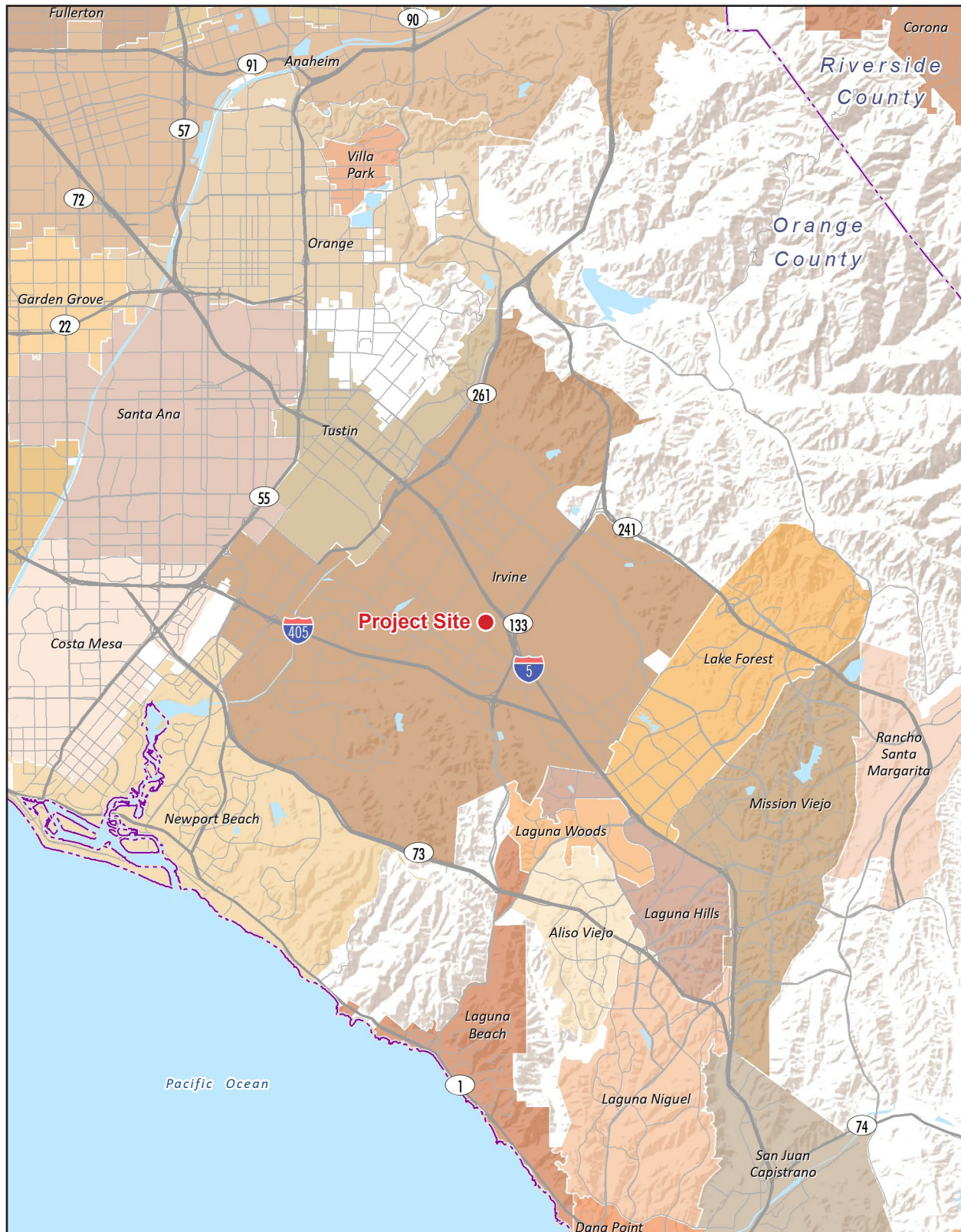

Michael Watson, PG 8177
Senior Geologist

Enclosures

Attachments:

Figure 1 - Regional Location
Figure 2 - Local Vicinity
Figure 3 - Aerial Photograph
Figure 4 - Areas of Potential Environmental Concern
Figure 5 - Sampling Locations
Table 1 - Sampling Table
Table 2 - Pesticide Results
Laboratory Data

Figure 1 - Regional Location

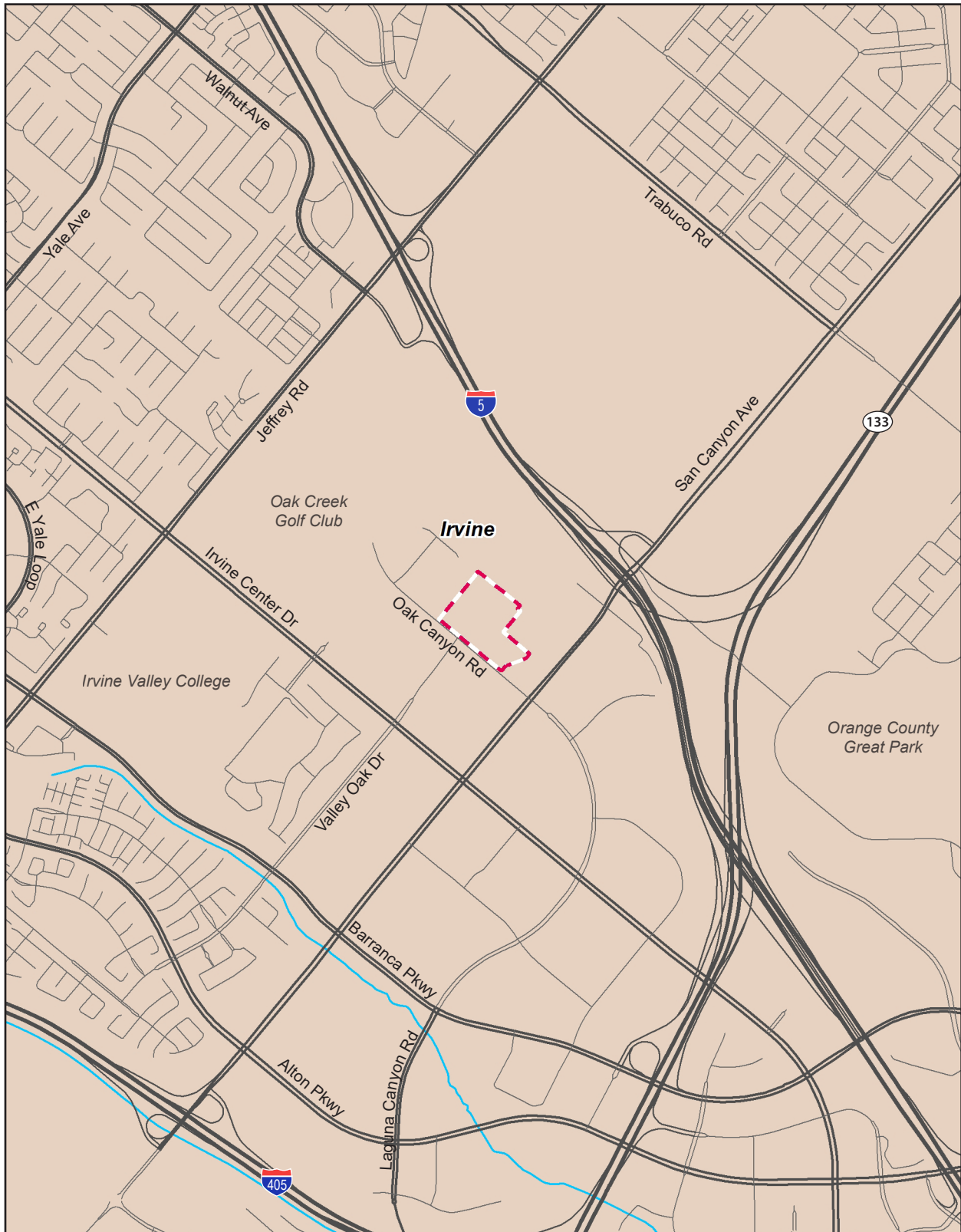


Note: Unincorporated county areas are shown in white.

Source: ESRI, 2020



Figure 2 - Local Vicinity



Source: ESRI, 2020

0 2,000
Scale (Feet)



PlaceWorks

Figure 3 - Aerial Photograph



--- Project Boundary

0 500
Scale (Feet)



Source: Nearmap, 2020

PlaceWorks

Figure 4 - Areas of Potential Environmental Concern



--- Project Boundary

0 150
Scale (Feet)



Source: Nearmap, 2020

PlaceWorks

Figure 5 - Sample Locations



TABLE 1
SAMPLING AND ANALYSIS PROGRAM
Irvine Animal Care Center & Operations Support Facility
City of Irvine
Irvine, California

Sample Number	Depth (feet bgs)	Rationale	EPA 8081A OCPs	LUFT 8015 gasoline	EPA 8015M TPH	EPA 6010B/74 71A CAM-17 Metals	EPA 6010B Arsenic
Soil							
B-1	0.5'	Agriculture and storage	D				D
	2.5'						
	5.0'						
B-2	0.5'	Agriculture and storage	D				D
	2.5'						
	5.0'						
B-3	0.5'	Agriculture and storage	D				D
	2.5'						
	5.0'						
B-4	0.5'	Agriculture and tanks	D				D
	2.5'			D		D	
	5.0'			D			
B-5	0.5'	Agriculture and tanks	D			D	
	2.5'			D		D	
	5.0'			D			

D = discrete sample

TABLE 2
SUMMARY TABLE OF ORGANOCHLORINE PESTICIDES IN SOIL
Irvine Animal Care Center & Operations Support Facility
City of Irvine
Irvine, California

Sample Number	Depth (feet bgs)	Sample Date	4,4'-DDE
B-1	0.5'	11/9/2021	0.0078
B-2	0.5'	11/9/2021	0.015
B-3	0.5'	11/9/2021	0.0062
B-4	0.5'	11/9/2021	0.033
B-5	0.5'	11/9/2021	0.0051
Maximum Concentration Detected			0.033
EPA Region 9 RSLs/ DTSC SLs			2

Concentration in milligrams per kilogram (mg/kg)

SL = screening level



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CASE NARRATIVE

Authorized Signature Name / Title (print)

Ken Zheng, President

Signature / Date

 Ken Zheng, President
11/18/2021 9:49:55

Laboratory Job No. (Certificate of Analysis No.)

2111-00079

Project Name / No.

 IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT
FACILITY COI-53

Dates Sampled (from/to)

11/09/21 To 11/09/21

Dates Received (from/to)

11/09/21 To 11/09/21

Dates Reported (from/to)

11/18/21 To 11/18/2021

Chains of Custody Received

Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Inorganic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
B-4@0.5'	4,4'-DDE	0.033		mg/Kg	0.0050	B-5@0.5'	4,4'-DDE	0.0051		mg/Kg	0.0050
B-3@0.5'	4,4'-DDE	0.0062		mg/Kg	0.0050	B-2@0.5'	4,4'-DDE	0.015		mg/Kg	0.0050
B-1@0.5'	4,4'-DDE	0.0078		mg/Kg	0.0050						



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CERTIFICATE OF ANALYSIS

2111-00079

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Date Received 11/09/21

Invoice No. 93377

Cust # P135

Permit Number

Customer P.O. COI-53

PLACEWORKS

DENISE CLENDENING

2850 INLAND EMPIRE BLVD.

SUITE B

ONTARIO, CA 91764

Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 B-4@0.5'					Date & Time Sampled:		11/09/21 @	7:18
Sample Matrix: Soil								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		11/11/21	TLB
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		11/10/21	DV
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDE	0.033		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	11/10/21	JEN
[Surrogates]								
Tetrachloro-m-xylene	140		%REC	EPA 8081A/8082		50-150	11/10/21	JEN
Decachlorobiphenyl	100		%REC	EPA 8081A/8082		50-150	11/10/21	JEN

Sample: 002 **B-4@2.5'**

Date & Time Sampled: 11/09/21 @ 7:20

Sample Matrix: **Soil**

[TPH Gasoline (C4-C12)]



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SUITE B
ONTARIO, CA 91764

Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 B-4@2.5'					Date & Time Sampled:		11/09/21 @	7:20
Sample Matrix: Soil								
.....continued								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		11/12/21	JEN
C4-C12	<0.50		mg/Kg	LUFT GC/MS	1.0	0.50	11/12/21	JEN
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		11/11/21	TLB
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Barium	130		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Cadmium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Chromium	16		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Cobalt	4.7		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Copper	7.8		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Lead	2.1		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Molybdenum	0.68		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Nickel	7.8		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Vanadium	67		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Zinc	39		mg/Kg	EPA 6010B	1.0	5.0	11/11/21	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		11/12/21	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	11/12/21	KZ
Sample: 003 B-4@5.0'					Date & Time Sampled:		11/09/21 @	7:22
Sample Matrix: Soil								
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		11/12/21	JEN
C4-C12	<0.50		mg/Kg	LUFT GC/MS	1.0	0.50	11/12/21	JEN
Sample: 004 B-5@0.5'					Date & Time Sampled:		11/09/21 @	7:34
Sample Matrix: Soil								

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Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 B-5@0.5'					Date & Time Sampled:		11/09/21 @	7:34
Sample Matrix: Soil								
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		11/11/21	TLB
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Arsenic	1.3		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Barium	150		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Beryllium	0.55		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Cadmium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Chromium	19		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Cobalt	5.8		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Copper	9.4		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Lead	3.9		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Molybdenum	0.72		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Nickel	9.5		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Vanadium	77		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Zinc	45		mg/Kg	EPA 6010B	1.0	5.0	11/11/21	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		11/12/21	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	11/12/21	KZ
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		11/10/21	DV
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDE	0.0051		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN

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Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 B-5@0.5' Sample Matrix: Soilcontinued					Date & Time Sampled:		11/09/21 @ 7:34	
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	11/10/21	JEN
[Surrogates]								
Tetrachloro-m-xylene	140		%REC	EPA 8081A/8082		50-150	11/10/21	JEN
Decachlorobiphenyl	100		%REC	EPA 8081A/8082		50-150	11/10/21	JEN
Sample: 005 B-5@2.5' Sample Matrix: Soil					Date & Time Sampled:		11/09/21 @ 7:36	
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		11/12/21	JEN
C4-C12	<0.50		mg/Kg	LUFT GC/MS	1.0	0.50	11/12/21	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		11/10/21	JEN
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	11/10/21	JEN
C23-C40	<20		mg/Kg	EPA 8015M	1.0	20	11/10/21	JEN
[Surrogate]								
o-Terphenyl (OTP)	66		%REC	EPA 8015M		50-150	11/10/21	JEN
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		11/11/21	TLB
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Barium	140		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB

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CERTIFICATE OF ANALYSIS

2111-00079

Date Reported 11/18/21
Date Received 11/09/21
Invoice No. 93377
Cust # P135
Permit Number
Customer P.O. COI-53

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 B-5@2.5' Sample Matrix: Soilcontinued					Date & Time Sampled:		11/09/21 @ 7:36	
Beryllium	0.62		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Cadmium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Chromium	19		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Cobalt	5.6		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Copper	9.6		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Lead	2.7		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Molybdenum	0.65		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Nickel	9.8		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
Vanadium	88		mg/Kg	EPA 6010B	1.0	0.50	11/11/21	TLB
Zinc	48		mg/Kg	EPA 6010B	1.0	5.0	11/11/21	TLB
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		11/12/21	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	11/12/21	KZ
Sample: 006 B-5@5.0' Sample Matrix: Soil					Date & Time Sampled:		11/09/21 @ 7:38	
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		11/12/21	JEN
C4-C12	<0.50		mg/Kg	LUFT GC/MS	1.0	0.50	11/12/21	JEN
Sample: 007 B-3@0.5' Sample Matrix: Soil					Date & Time Sampled:		11/09/21 @ 7:50	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		11/11/21	TLB
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		11/10/21	DV
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN

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CERTIFICATE OF ANALYSIS

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 ONTARIO, CA 91764

Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 B-3@0.5' Sample Matrix: Soilcontinued					Date & Time Sampled:		11/09/21 @ 7:50	
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDE	0.0062		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	11/10/21	JEN
[Surrogates]								
Tetrachloro-m-xylene	120		%REC	EPA 8081A/8082		50-150	11/10/21	JEN
Decachlorobiphenyl	120		%REC	EPA 8081A/8082		50-150	11/10/21	JEN
Sample: 008 B-2@0.5' Sample Matrix: Soil					Date & Time Sampled:		11/09/21 @ 8:06	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		11/11/21	TLB
Arsenic	2.6		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		11/10/21	DV
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN

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Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 B-2@0.5' Sample Matrix: Soilcontinued					Date & Time Sampled:		11/09/21 @ 8:06	
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDE	0.015		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	11/10/21	JEN
[Surrogates]								
Tetrachloro-m-xylene	130		%REC	EPA 8081A/8082		50-150	11/10/21	JEN
Decachlorobiphenyl	110		%REC	EPA 8081A/8082		50-150	11/10/21	JEN
Sample: 009 B-1@0.5' Sample Matrix: Soil					Date & Time Sampled:		11/09/21 @ 8:25	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		11/11/21	TLB
Arsenic	2.3		mg/Kg	EPA 6010B	1.0	1.0	11/11/21	TLB
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		11/10/21	DV
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN

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SUITE B
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Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 009 B-1@0.5' Sample Matrix: Soilcontinued							Date & Time Sampled: 11/09/21 @ 8:25	
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDE	0.0078		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	11/10/21	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	11/10/21	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	11/10/21	JEN
[Surrogates]								
Tetrachloro-m-xylene	120		%REC	EPA 8081A/8082		50-150	11/10/21	JEN
Decachlorobiphenyl	110		%REC	EPA 8081A/8082		50-150	11/10/21	JEN

Respectfully Submitted:

Ken Zheng - Lab Director



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QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.

B1 = BOD dilution water is over specifications . The reported result may be biased high.

D = Surrogate recoveries are not calculated due to sample dilution.

E = Estimated value; Value exceeds calibration level of instrument.

H = Analyte was prepared and/or analyzed outside of the analytical method holding time

I = Matrix Interference.

J = Analyte concentration detected between RL and MDL.

Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.

S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor

RL = Reporting Limit, Adjusted by DF

MDL = Method Detection Limit, Adjusted by DF

Qual = Qualifier

Tech = Technician



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QUALITY CONTROL DATA REPORT

PLACEWORKS

ONTARIO, CA 91764

2111-00079

Date Reported 11/18/2021

Date Received 11/09/2021

Date Sampled 11/09/2021

Invoice No. 93377

Customer # P135

Customer P.O. COI-53

Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT FACILITY

Method # EPA 6010B

QC Reference # 99378

Date Analyzed: 11/11/2021

Technician: TLB

Samples 002 004 005

Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Antimony	102	99	2.7	81	82	1.3
Arsenic	101	100	0.6	84	87	3.0
Barium	101	103	2.2	86	87	0.6
Beryllium	103	105	2.4	94	95	0.8
Cadmium	101	101	0.4	82	83	1.0
Chromium	102	104	1.6	103	105	0.6
Cobalt	100	101	0.6	71	72	1.7
Copper	104	106	1.8	83	85	0.8
Lead	100	101	1.0	76	77	1.7
Molybdenum	100	100	0.3	81	82	1.5
Nickel	100	101	0.3	70	74	2.0
Selenium	101	102	1.3	69	70	1.8
Silver	102	103	0.5	76	76	0.2
Thallium	110	107	2.9	65	66	0.4
Vanadium	102	103	1.2	87	90	0.9
Zinc	101	101	0.0	73	77	1.1

Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20

QC Reference # 99379

Date Analyzed: 11/11/2021

Technician: TLB

Samples 001 007 008 009

Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Arsenic	101	100	0.6	84	87	3.0
Lead	100	101	1.0	76	77	1.7

Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
75 - 125	0 - 20	0 - 20
75 - 125	0 - 20	0 - 20

Method # EPA 7471A

QC Reference # 99426

Date Analyzed: 11/12/2021

Technician: KZ

Samples 002 004 005

Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Mercury	85	94	9	91	82	9

Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
75 - 125	0 - 25	0 - 25

Method # EPA 8015M

QC Reference # 99517

Date Analyzed: 11/10/2021

Technician: JEN

Samples 005

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
C13-C22	100	119	110	9

Control Ranges

LCS %REC	SPIKE %RPD
70 - 130	0 - 25



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QUALITY CONTROL DATA REPORT

PLACEWORKS

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Date Reported 11/18/2021
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Project: IRVINE ANIMAL CARE CENTER & OPERATIONS SUPPORT FACILITY

Method # EPA 8081A

QC Reference # 99438 Date Analyzed: 11/10/2021 Technician: JEN

Samples 001 004 007 008 009

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
4,4'-DDT	63	62	60	3
Aldrin	130	130	140	10
Dieldrin	130	140	130	10
Endrin	90	90	84	6
gamma-BHC	120	120	110	10
Heptachlor	100	120	110	10

Control Ranges

LCS %REC	SPIKE %RPD
30 - 130	0 - 30
50 - 140	0 - 30
70 - 130	0 - 30
70 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30

Method # EPA 8081A/8082

QC Reference # 99438 Date Analyzed: 11/10/2021 Technician: JEN

Samples 001 004 007 008 009

No QC recoveries reported.

Method # LUFT GC/MS

QC Reference # 99420 Date Analyzed: 11/12/2021 Technician: JEN

Samples 002 003 005

Results

	LCS %REC	LCS %DUP	LCS %RPD
C4-C12	100	101	1

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25

QC Reference # 99421 Date Analyzed: 11/12/2021 Technician: JEN

Samples 006

Results

	LCS %REC
C4-C12	96

Control Ranges

LCS %REC
70 - 130

No method blank results were above reporting limit

Respectfully Submitted:

Ken Zheng

Ken Zheng - President

Client Name PLACEWORKS				<input checked="" type="checkbox"/> Chilled		Analyses Requested										Turn Around Time Requested		
E-mail DCLENDING@PLACEWORKS.COM				<input checked="" type="checkbox"/> Intact		<input type="checkbox"/> Rush 8 12 24 48 Hours <input checked="" type="checkbox"/> Normal												
Address 2850 ENLAND EMPIRE BLVD ONTARIO CA 91764				<input type="checkbox"/> Seal														
Report Attention Denise		Phone # 909.989.4449		Sampled By M. Watson														
Project No./ Name 53		Project Site TRINITY ANIMAL CARE CENTER & OPERATIONS SUPPORT FACILITY EXP																
Lab #	Client Sample ID	Sample Collection		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	6010B Arsenic	Hold	Remarks
1	B-4E0.5'	11/9/21	0718	Soil	ice	1 acetate sleeve					X					X		
2	B-4E2.5'		0720						X					X				
3	B-4E5.0'		0722						X									
4	B-5E0.5'		0734							X				X				
5	B-5E2.5'		0736						X				X	X				
6	B-5E5.0'		0738						X									
7	B-3E0.5'		0750							X						X		
	B-3E2.5'		0752															X
	B-3E5.0'		0754															X
8	B-2E0.5'		0806								X					X		
	B-2E2.5'		0808															X
	B-2E5.0'		0816															X
9	B-1E0.5'		0825								X					X		
	B-1E2.5'		0827															X
	B-1E5.0'		0829															X
Relinquished By M. Watson		Company PLACEWORKS		Date 11/9/21	Time 10:05	Received By M. Watson		Company		Date 11/9	Time 10:05	Note: Samples are discarded 30 days after results are reported unless other arrangements are made.						
Relinquished By		Company		Date	Time	Received By		Company		Date	Time							

Matrix Code:

DW=Drinking Water
GW=Ground Water
WW=Waste Water
SD=Solid Waste

SL=Sludge
SS=Soil/Sediment
AR=Air
PP=Pure Product

Preservative Code

IC=Ice
HC=HCl-24
HN=HNO₃

SH=NaOH
ST=Na₂S₂O₃
HS=H₂SO₄

* Sample Container Types:
T=Tedlar Air Bag
G=Glass Container
ST= Steel Tube

B= Brass Tube
P=Plastic Bottle
V=VOA Vial

E= EnCore



Sample Acceptance Checklist

CLIENT: Placeworks

WORK ORDER NUMBER: 2111-79

Temperature: (Criteria: 0.0°C-6.0°C)

Sample Temp. (w/CF) °C(w/CF) 3.4°C

- ☐ Sample(s) outside temperature criteria: PM contacted by :
☐ Sample(s) outside temperature criteria, but received on ice/chilled on same day of sampling.
☐ Sample(s) received at ambient temperature; placed on ice for transport by courier.
Ambient Temperature ☐ Air ☐ Filter

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present and Not Intact ☒ Not Present
Sample(s) ☐ Present and Intact ☐ Present and Not Intact ☒ Not Present

Sample Condition:

	Yes	No	N/A
Was a COC received	<input checked="" type="checkbox"/>		
Were sample IDs present?	<input checked="" type="checkbox"/>		
Were sampling dates & times present?	<input checked="" type="checkbox"/>		
Was a relinquished signature present?	<input checked="" type="checkbox"/>		
Were the tests required clearly indicated?	<input checked="" type="checkbox"/>		
Were all samples sealed in plastic bags?			<input checked="" type="checkbox"/>
Did all bottle labels agree with COC? (ID, dates and times)	<input checked="" type="checkbox"/>		
Were correct containers used for the tests required?	<input checked="" type="checkbox"/>		
Was a sufficient amount of samples sent for tests indicated?	<input checked="" type="checkbox"/>		
Was there headspace in VOA vials?			<input checked="" type="checkbox"/>
Were the containers labeled with correct preservatives?			<input checked="" type="checkbox"/>

Explanations/Comments:

Notification:

For discrepancies, how was the Project Manager notified? Verbal

Verbal: PM Initials: _____ Data/Time: _____

Email: Send to: _____ Data/Time: _____

Project Manager's response:

Completed By: 

Date: 11/9/21

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