KINDER MORGAN
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SFPP, L.P.
Operating Partnership

April 26, 2019

California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, California 90013

Re: 2018 Harbor Toxics Total Maximum Daily Load Monitoring Report
SFPP, L.P. Norwalk Pump Station
15306 Norwalk Boulevard, Norwalk, California
(NPDES No. CA0063509, CI No. 7497)

Attention: Information Technology Unit

In reference to the subject National Pollutant Discharge Elimination System (NPDES) permit, please find enclosed the 2018 Harbor Toxics Total Maximum Daily Load Monitoring Report.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on the 26th day of April 2019.
at 9:19 a.m.

_____ (signature)

Stephen T. Defibaugh (printed name)

Remediation Project Manager (title)

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Mr. Stephen Defibaugh
Kinder Morgan, Inc.
1100 Town and Country Road, Suite 700
Orange, California 92868

April 29, 2019

Subject: **2018 Harbor Toxics Total Maximum Daily Load Sampling Event**
SFPP Norwalk Pump Station, 15306 Norwalk Boulevard, Norwalk, California
(NPDES No. CA0063509, CI No. 7497, Order No. R4-2016-0309)

Dear Mr. Defibaugh,

This report has been prepared by CH2M HILL Engineers, Inc. (CH2M), now part of Jacobs Engineering Group Inc. (Jacobs), on behalf of Kinder Morgan, Inc. (Kinder Morgan), to present the results of 2018 Toxic Pollutants in the Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters total maximum daily load (TMDL) [Harbor Toxics TMDL] monitoring activities, as required by the National Pollutant Discharge Elimination System (NPDES) permit related to the discharge of treated groundwater from Kinder Morgan's product recovery and groundwater extraction system at the SFPP, L.P. (SFPP) Norwalk Pump Station within the Defense Fuel Support Point Norwalk (DFSP), at 15306 Norwalk Boulevard, Norwalk, California (the site; Figure 1).

As stated under Section VII.C.2.b of the NPDES permit for the site (Order Number [No.] R4-2016-0309), as adopted by the California Regional Water Quality Control Board, Los Angeles Region (Water Board), dischargers into the San Gabriel River Watershed shall conduct ambient surface water and sediment monitoring at the mouth of the San Gabriel River to comply with the Harbor Toxics TMDL requirement (Water Board, 2011). In order to meet this requirement, CH2M submitted the *Final Monitoring Plan and Quality Assurance Project Plan (QAPP)* to the Water Board on March 19, 2018 (CH2M, 2018), along with a response to comments from the Water Board on the Draft Monitoring Plan and QAPP submitted in October 30, 2017 (CH2M, 2017). The Final Monitoring Plan and QAPP was approved by the Water Board on May 7, 2018 (Water Board, 2018a).

This report documents Harbor Toxics TMDL monitoring and sampling activities during the 2018 reporting year (May 2018 through April 2019). The 2018 Harbor Toxics TMDL reporting year was extended from December 31, 2018 to April 30, 2019 in an email correspondence from Ching-Yin To of the Water Board on December 24, 2018 (Water Board, 2018b) due to insufficient rainfall in the fourth quarter of 2018 precluding collection of wet weather samples. A copy of that email is included in Attachment A. As described in this report, 2018 Harbor Toxics TMDL monitoring activities included collection of one dry weather (July 11, 2018) and two wet weather (November 30, 2018 and January 15, 2019) chemistry surface water sampling events.

Field Activities

Dry and Wet Weather Surface Water Chemistry Sampling

The TMDL samples were collected from the west side of the Marina Drive bridge, approximately 190 feet from the north end of the bridge (in Long Beach) at Global Positioning System (GPS) coordinates 33.747027/-118113248 (latitude/longitude). The sampling location is shown on Figure 2. Sampling was performed using a new 5-gallon bucket secured to a nylon rope, lowered from the Marina Drive bridge. The sampling location was selected because it afforded the safest approach to collect representative samples from the middle of the mouth of the San Gabriel River.

As required by the Monitoring Plan and QAPP, the field parameters measured were temperature, dissolved oxygen, pH, and specific conductivity. Additional field parameters measured were salinity, turbidity, height of the water column, and transparency of water using a standard Secchi disk.

The water samples were delivered to Asset Laboratories of Las Vegas, Nevada (Asset), TestAmerica Laboratories of Irvine, California (TestAmerica), and Pace Analytical Services, LLC., of Minneapolis, Minnesota (Pace). Asset, TestAmerica, and Pace are certified by the California Department of Public Health Environmental Laboratory Accreditation Program. The following analyses were performed:

- Asset analyzed the water samples for total suspended solids by Standard Method (SM) 2540; copper, lead, and zinc by U.S. Environmental Protection Agency (EPA) Method 200.8; and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270C.
- TestAmerica analyzed the water samples for the pesticides 2,4- dichlorodiphenyltrichloroethane (DDT) and 4,4-DDT using EPA Method 8081A. Due to a laboratory error, the 2,4-DDT analysis requested on the chain-of-custody forms was not performed on samples collected July 11, 2018, and January 15, 2019. Samples collected during future monitoring events will be analyzed for 2,4-DDT.
- Pace analyzed the water samples for total polychlorinated biphenyls (PCBs) using EPA Method 1668.

Equipment blanks were not collected during the 2018 reporting period; however, field equipment was decontaminated prior to each sampling event to mitigate the risk of cross-contamination and potential effects from biological growth. Equipment blanks will be collected during future sampling events.

Sediment Chemistry Sampling

Sediment chemistry samples were not collected during the 2018 reporting period. In accordance with the Monitoring Plan and QAPP (CH2M, 2018), sediment monitoring and sampling is to be conducted at least once every 2 years. The first sediment sampling event will occur during in 2019 during the dry season.

Sampling Results

The San Gabriel River surface water field parameters for the July 11, 2018, November 30, 2018, and January 15, 2019, sampling events are summarized in Table 1. Field data sheets are included in Attachment B. Analytical results for the sampling events are summarized in Table 2.

Laboratory analytical reports and chain-of-custody documents are included in Attachment C. A data quality assurance/quality control evaluation is included in Attachment D.

The 2019 Harbor Toxics TMDL reporting year effectively began immediately after the second 2018 wet weather sample was collected on January 15, 2018. The plan for the 2019 reporting year is to collect two wet weather surface water samples, one dry weather surface water sample and one dry weather sediment sample. The results of 2019 reporting year monitoring and sampling will be included in an attachment in the forthcoming *Fourth Quarter 2019 Effluent Monitoring Report*.

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References

California Regional Water Quality Control Board, Los Angeles Region (Water Board). 2011. Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and the Greater Los Angeles and Long Beach Harbor Waters. Resolution No. R11-008. May 5.

California Regional Water Quality Control Board, Los Angeles Region (Water Board). 2018a. Approval of the Monitoring Plan and Quality Assurance Project Plan – SFPP, L.P., SFPP Norwalk Pump Station, Norwalk, California (NPDES No. CA0063509, CI NO. 7497). May 7.

California Regional Water Quality Control Board, Los Angeles Region (Water Board). 2018b. Email communication with Ching-Yin To. to Padrick Anderson, Jacobs "RE: Questions Regarding TMDL Sampling Schedule." December 24.

CH2M Engineers, Inc. (CH2M). 2018. *Monitoring Plan and Quality Assurance Project Plan (QAPP) to Address Harbor Toxics Total Maximum Daily Load Monitoring Requirements. SFPP Norwalk Pump Station, National Pollutant Discharge Elimination System Permit Number CA0063509 (Order No. R4-2016- 0309).* October

CH2M Engineers, Inc. (CH2M). 2018. *Monitoring Plan and Quality Assurance Project Plan (QAPP) to Address Harbor Toxics Total Maximum Daily Load Monitoring Requirements. SFPP Norwalk Pump Station, National Pollutant Discharge Elimination System Permit Number CA0063509 (Order No. R4-2016- 0309).* March 19.

Should you require any further information, please contact Vladimir Carino/Jacobs at (949) 244-7584.

Regards,

Vladimir Carino
Project Engineer

Attachments:

Table 1 – Harbor Toxics Field Monitoring Summary
Table 2 – Harbor Toxics TMDL Analytical Laboratory Summary Table (Water Samples)

Figure 1 – Site Location Map
Figure 2 – San Gabriel River Sampling Location

Attachment A – Water Board Email Regarding TMDL Sampling Schedule
Attachment B – Field Measurements
Attachment C – Laboratory Analytical Reports and Chain-of-Custody Documents
Attachment D – Data Quality Assurance/Quality Control Evaluation

Tables

Table 1. Harbor Toxics Field Monitoring Summary

SFPP Norwalk Pump Station, Norwalk, California

Sampling Date	Sampling Location[a] (Lat/Long)	Wet or Dry Weather[b]	Depth to Water (feet)	Water Column (feet)	Secchi (depth not visible)	River Flow (ft/s)	Wind Speed + Direction	pH	Temp (°C)	Salinity (ppt)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
07/11/18	33.747027/ -118.113248	Dry	14.5	12.2	1.0	0.9	10 mph from WSW	8.08	27.55	--	50.9	5.27	--
11/30/18	33.747027/ -118.113248	Wet	15.5	11	1.5	0.6	5 mph from N	6.59	18.29	11.4	19.3	11.12	29.6
01/15/19	33.747027/ -118.113248	Wet	16.65	10.5	1.5	0.4	10 mph from E	7.15	17.18	5.3	9.54	6.95	27.3

Notes:

[a] Sampling and monitoring is conducted from the middle of the river from the Marina Drive bridge for safety concerns

[b] Wet weather condition is defined as Precipitation > 0.25 inches within last 24 hours

-- = not measured or not analyzed

° C = degrees Celsius

µg/L = microgram(s) per liter

ft/s = feet per second

Lat/Long = latitude and longitude coordinates, accuracy +/- 1.59 meters

mg/L = milligram(s) per liter

mph = mile(s) per hour

mS/cm = millisiemen(s) per centimeter

N = north; S = south; E = east; W = west

NTU = nephelometric turbidity unit(s)

ppt = part(s) per trillion

Table 2. Harbor Toxics TMDL Analytical Laboratory Summary Table (Water Samples)

SFPP Norwalk Pump Station, Norwalk, California

Parameter Name	Analytical Method	Report Units	7/11/2018	11/30/2018	1/15/2019
Total Suspended Solids[a]	A2540D	mg/L	25	38	12
Copper	E200.8	µg/L	<1.3	<0.26	<0.26
Lead	E200.8	µg/L	<0.64	1.3 J	0.98
Zinc	E200.8	µg/L	<1.3	22	20
Total DDT[b]	SW8081A	µg/L	--	<0.0253	--
2,4'-DDT	SW8081A	µg/L	--	<0.021	--
4,4'-DDT	SW8081A	µg/L	<0.0041	<0.0043	<0.0043
1-Methyl naphthalene	SW8270C SIM	µg/L	<0.041	<0.04	<0.043
2-Methyl naphthalene	SW8270C SIM	µg/L	<0.059	<0.058	<0.062
Acenaphthene	SW8270C SIM	µg/L	<0.05	<0.048	<0.052
Acenaphthylene	SW8270C SIM	µg/L	<0.05	<0.049	<0.053
Anthracene	SW8270C SIM	µg/L	<0.044	<0.043	<0.046
Benzo(a)anthracene	SW8270C SIM	µg/L	<0.037	<0.036	<0.039
Benzo (a) pyrene	SW8270C SIM	µg/L	<0.044	<0.043	<0.046
Benzo (b) fluoranthene	SW8270C SIM	µg/L	<0.044	<0.043	<0.046
Benzo (ghi) perylene	SW8270C SIM	µg/L	<0.067	<0.066	<0.071
Benzo (k) fluoranthene	SW8270C SIM	µg/L	<0.056	<0.055	<0.059
Chrysene	SW8270C SIM	µg/L	<0.044	<0.043	<0.046
Dibenz(a,h)anthracene	SW8270C SIM	µg/L	<0.059	<0.058	<0.062
Fluoranthene	SW8270C SIM	µg/L	<0.035	<0.034	<0.037
Fluorene	SW8270C SIM	µg/L	<0.046	<0.045	<0.048
Indeno (1,2,3-cd) pyrene	SW8270C SIM	µg/L	<0.06	<0.059	<0.063
Naphthalene	SW8270C SIM	µg/L	<0.053	<0.052	<0.056
Phenanthrene	SW8270C SIM	µg/L	<0.05	<0.048	<0.052
Pyrene	SW8270C SIM	µg/L	<0.035	<0.034	<0.037
Total PCBs	EPA 1668A	µg/L	0.000754	ND	0.00216

Notes:

[a] Residue, non-filterable

[b] Sum of 2,4'-DDT and 4,4-'DDT

< = not detected above the listed method detection limit

µg/L – microgram(s) per liter

DDT = dichlorodiphenyltrichloroethane

J = estimated value

mg/L – milligram(s) per liter

ND = not detected

PCB – polychlorinated biphenyl

TMDL = total maximum daily load

Figures

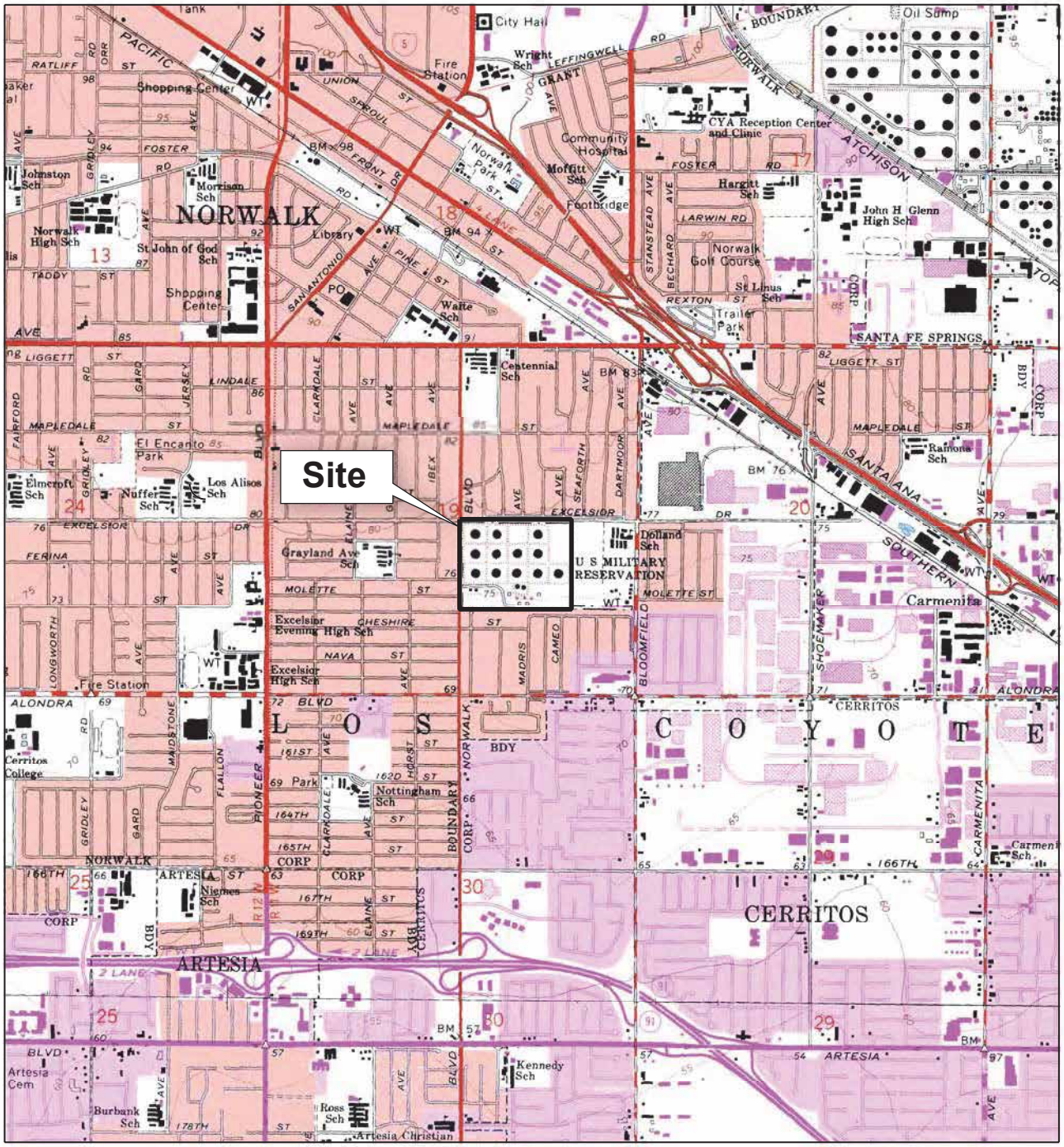

Figure 1. Site Location Map
SFPP Norwalk Pump Station
Norwalk, California

BASEMAP MODIFIED FROM U.S.G.S. 7.5 MINUTE QUADRANGLE MAP
LOS ALAMITOS 1964, CALIFORNIA. PHOTO-REVISED 1981.
WHITTIER 1965, CALIFORNIA. PHOTO-REVISED 1981.

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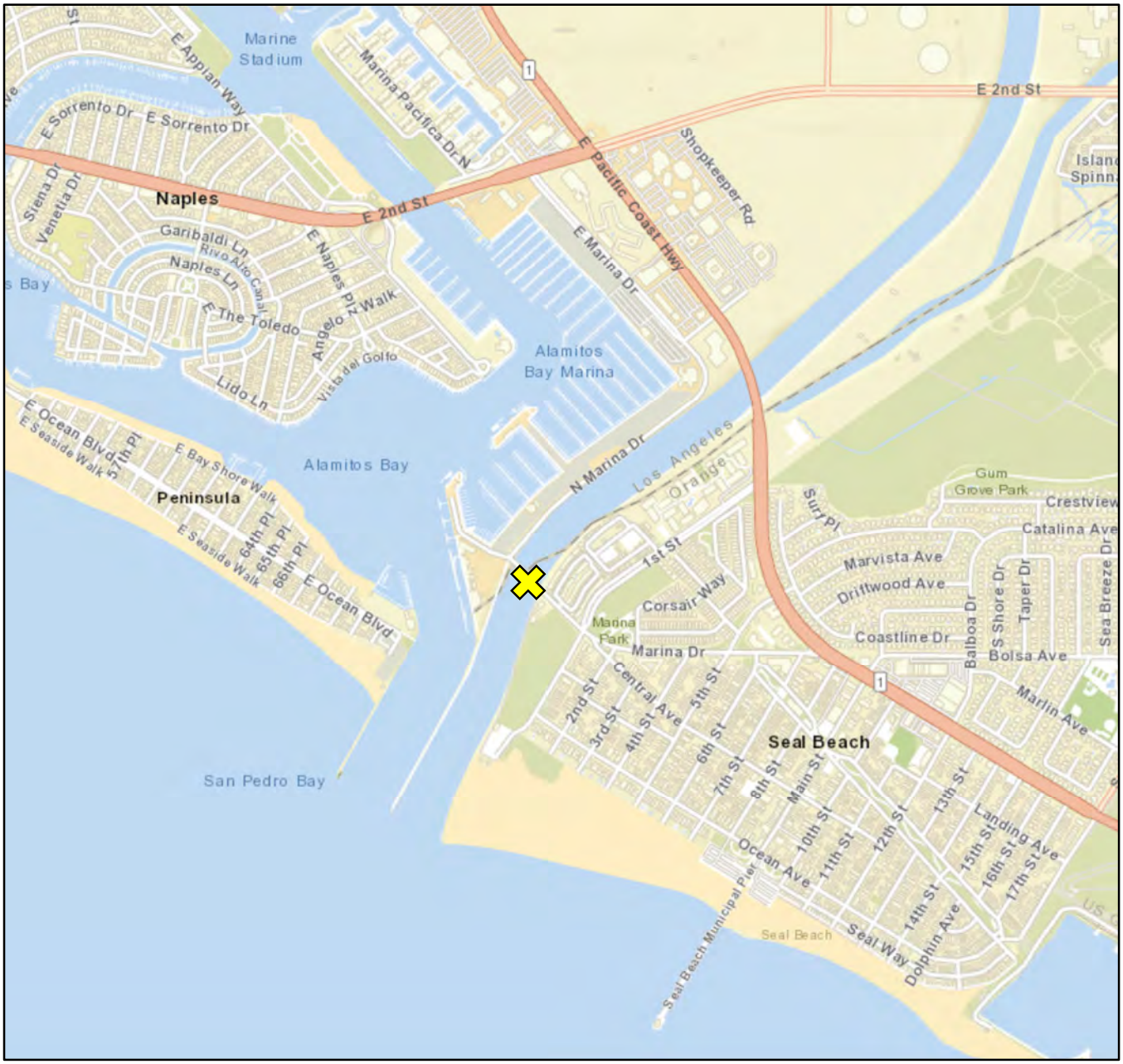

LEGEND

Approximate Water/Sediment Sampling Location

Basemap Source: ESRI World Streetmap

N

0 750 1,500

Feet

Figure 2. San Gabriel River Sampling Location
SFPP Norwalk Pump Station
Los Angeles County, California

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\\galt\proj\KinderMorgan\697032\MapFiles\Site_Location_170915.mxd

Attachment A
Water Board Email Regarding TMDL Sampling Schedule

To: Anderson, Padrick/BAO
Subject: RE: Questions Regarding TMDL Sampling Schedule

From: To, Ching-Yin@Waterboards <Ching-Yin.To@waterboards.ca.gov>
Sent: Monday, December 24, 2018 8:18
To: Anderson, Padrick/BAO <Padrick.Anderson@jacobs.com>
Cc: Johnson, Jeffrey/DEN <Jeffrey.Johnson1@jacobs.com>
Subject: [EXTERNAL] RE: Questions Regarding TMDL Sampling Schedule

Hello Mr. Anderson,

That will be fine. Based on your email, the monitoring year started in May 2018. So sampling the second wet weather event during Jan-April 2019 will be still within the reporting year.

Happy Holidays,

Ching Yin To, P.E.
Water Resources Control Engineer
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
(213)576-6696
Ching-Yin.To@waterboards.ca.gov

From: Anderson, Padrick/BAO <Padrick.Anderson@jacobs.com>
Sent: Friday, December 21, 2018 11:44 AM
To: To, Ching-Yin@Waterboards <Ching-Yin.To@waterboards.ca.gov>
Cc: Johnson, Jeffrey/DEN <Jeffrey.Johnson1@jacobs.com>
Subject: Questions Regarding TMDL Sampling Schedule

Hello Ching-Yin,

I'm writing to follow up on my voicemail from earlier today on some questions regarding the monitoring requirements of the Norwalk HarborToxics TMDL, associated with the SFPP Norwalk Pump Station (CA0063509, order no R4-2016-0309).

The monitoring plan requires sampling the San Gabriel River during one dry weather event and two wet weather events annually. Since the initiation of the TMDL in May 2018, the required dry weather event and one wet weather event have been sampled. However, the second wet weather event is still outstanding, and it looks increasingly uncertain that there will be a qualifying event in the remainder of the 2018 calendar year.

We wanted to verify that sampling the second wet weather event during January-April 2019 would be acceptable for this reporting cycle.

Thank you for your help,

Padrick Anderson
Jacobs
Environmental Scientist | Global Environmental Solutions
707-631-0959
Padrick.Anderson@jacobs.com

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Oakland, California 94612
USA
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Attachment B
Field Measurements

SWAMP Field Data Sheet (Water Chemistry & Discrete Probe) - EventType=WQ

Entered in d-base (initial/date) | Pg 1 of 1 Pgs

*StationID: SFPP NORWALK PUMP STATION | *Date (mm/dd/yyyy): 07 /11 /2018 | *Group: NA | *Agency: Jacobs Engineering

*Funding: ___ ___ ___ ___ ___ ___ ___ ___ | ArrivalTime: 12:05 | DepartureTime: 14:25 | *SampleTime (1st sample): 12:22 | *Protocol:

*ProjectCode: | *Personnel: N. Orliczky / V. Carino | *Purpose (circle applicable): WaterChem / WaterTox / Habitat / FieldMeas | *PurposeFailure:

*Location: Bank / Thalweg / Midchannel / OpenWater

GPS Device: Google Earth

Datum: NAD83 | Accuracy (ft / m): 1.59m

*GPS/DGPS	Lat (dd.ddddd)	Long (ddd.ddddd)
Target:	33.74821	-118.112072
*Actual:	33.747027	-118.113248

OCCUPATION METHOD: Walk-in / Bridge / R/V _____ / Other

STARTING BANK (facing downstream): LB / RB / NA

Point of Sample (if Integrated, then -88 in dbase)

Habitat Observations (CollectionMethod = Habitat_generic)

WADEABILITY: Y / N / Unk

BEAUFORT SCALE (see attachment): 1

DISTANCE FROM BANK (m): 49

STREAM WIDTH (m): 109

WATER DEPTH (m): 3.7

HYDROMODIFICATION: None, Bridge, Pipes, ConcreteChannel, GradeControl, Culvert, AerialZipline, Other

LOCATION (to sample): US / DS / WI / NA

SITE ODOR: None, Sulfides, Sewage, Petroleum, Smoke, Other_____

SKY CODE: Clear, Partly Cloudy, Overcast, Fog, Smoky, Hazy

WIND DIRECTION (from): WSW

OTHER PRESENCE: Vascular, Nonvascular, OilySheen, Foam, Trash, Other ____

DOMINANT SUBSTRATE: Bedrock, Concrete, Cobble, Boulder, Gravel, Sand, Mud, Unk, Other_____

PHOTOS (RB & LB assigned when facing downstream; RENAME to StationCode_yyyy_mm_dd_uniquecode)

1: (RB / LB / BB / US / DS / ##)

2: (RB / LB / BB / US / DS / ##)

3: (RB / LB / BB / US / DS / ##)

WATERCLARITY: Clear (see bottom), Cloudy (>4" vis), Murky (<4" vis)

WATERODOR: None, Sulfides, Sewage, Petroleum, Mixed, Other____

WATERCOLOR: Colorless, Green, Yellow, Brown

PRECIPITATION: None, Fog, Drizzle, Rain, Snow

PRECIPITATION (last 24 hrs): Unknown, <1", >1", None

EVIDENCE OF FIRES: No, <1 year, <5 years

OVERLAND RUNOFF (Last 24 hrs): none, light, moderate / heavy, unknown

OBSERVED FLOW: NA, Dry Waterbody Bed, No Obs Flow, Isolated Pool, Trickle (<0.1cfs), 0.1-1cfs, 1-5cfs, 5-20cfs, 20-50cfs, 50-200cfs, >200cfs

Field Measurements (SampleType = FieldMeasure; Method = Field)

	DepthCollec (m)	Velocity (fps)	Air Temp (°C)	Water Temp (°C)	pH	DO (mg/L)	DO (%)	Specific Conductivity (uS/cm)	Salinity (ppt)	Turbidity (ntu)			
SUBSURF/MID/ BOTTOM/REP	0.2	0.9	28.3	27.5	8.08	5.27	--	50.9	--	--			
SUBSURF/MID/ BOTTOM/REP													
SUBSURF/MID/ BOTTOM/REP													
Instrument:	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	--	Horiba U-52	--	--			
Calib. Date:	07/09/18	07/09/18	07/09/18	07/09/18	07/09/18	07/09/18	--	07/09/18	--	--			

Samples Taken (# of containers filled) - Method=Water_Grab

Field Dup YES / NO: (SampleType = Grab / Integrated; LABEL_ID = FieldQA; create collection record upon data entry

SAMPLE TYPE: Grab / Integrated

COLLECTION DEVICE: Indiv bottle (by hand, by pole, by bucket); Teflon tubing; Kemmer; Pole & Beaker; Other _____

	DepthCollec (m)	Inorganics	Bacteria	Chl a	TSS / SSC	TOC / DOC	Total Hg	Dissolved Mercury	Total Metals	Dissolved Metals	Organics	Toxicity	VOAs
Sub/Surface	0.2	3			2				1		2		
Sub/Surface													

COMMENTS:

Tide appears to be coming in, surface water flowing in from ocean. Secchi disc not visible at 1.0 feet below water level.

SWAMP Field Data Sheet (Water Chemistry & Discrete Probe) - EventType=WQ

Entered in d-base (initial/date) | Pg 1 of 1 Pgs

*StationID: SFPP NORWALK PUMP STATION | *Date (mm/dd/yyyy): 11/30 /2018 | *Group: NA | *Agency: Jacobs Engineering

*Funding: ___ ___ ___ ___ ___ ___ ___ ___ | ArrivalTime: 07:50 | DepartureTime: 09:32 | *SampleTime (1st sample): 08:05 | *Protocol:

*ProjectCode: | *Personnel: N. Orliczky / E.Davis | *Purpose (circle applicable) WaterChem / WaterTox / Habitat / FieldMeas | *PurposeFailure:

*Location: Bank / Thalweg / Midchannel / OpenWater

GPS Device: Google Earth

Datum: NAD83 | Accuracy (ft / m): 1.59m

*GPS/DGPS	Lat (dd.ddddd)	Long (ddd.ddddd)
Target:	33.74821	-118.112072
*Actual:	33.747027	-118.113248

OCCUPATION METHOD: Walk-in / Bridge / R/V _____ / Other

STARTING BANK (facing downstream): LB / RB / NA

Point of Sample (if Integrated, then -88 in dbase)

Habitat Observations (CollectionMethod = Habitat_generic)

WADEABILITY: Y / N / Unk

BEAUFORT SCALE (see attachment): 1

DISTANCE FROM BANK (m): 49

STREAM WIDTH (m): 109

WATER DEPTH (m): 3.4

HYDROMODIFICATION: None, Bridge, Pipes, ConcreteChannel, GradeControl, Culvert, AerialZipline, Other

LOCATION (to sample): US / DS / WI / NA

SITE ODOR: None, Sulfides, Sewage, Petroleum, Smoke, Other_____

SKY CODE: Clear, Partly Cloudy, Overcast, Fog, Smoky, Hazy

WIND DIRECTION from: N

OTHER PRESENCE: Vascular, Nonvascular, OilySheen, Foam, Trash, Other___

DOMINANT SUBSTRATE: Bedrock, Concrete, Cobble, Boulder, Gravel, Sand, Mud, Unk, Other_____

PHOTOS (RB & LB assigned when facing downstream; RENAME to StationCode_yyyy_mm_dd_uniquecode)

1: (RB / LB / BB / US / DS / ##)

2: (RB / LB / BB / US / DS / ##)

3: (RB / LB / BB / US / DS / ##)

WATERCLARITY: Clear (see bottom), Cloudy (>4" vis), Murky (<4" vis)

PRECIPITATION: None, Fog, Drizzle, Rain, Snow

WATERODOR: None, Sulfides, Sewage, Petroleum, Mixed, Other____

PRECIPITATION (last 24 hrs): Unknown, <", >1", None

WATERCOLOR: Colorless, Green, Yellow, Brown

EVIDENCE OF FIRES: No, <1 year, <5 years

OVERLAND RUNOFF (Last 24 hrs): none, light, moderate / heavy, unknown

OBSERVED FLOW: NA, Dry Waterbody Bed, No Obs Flow, Isolated Pool, Trickle (<0.1cfs), 0.1-1cfs, 1-5cfs, 5-20cfs, 20-50cfs, 50-200cfs, >200cfs

Field Measurements (SampleType = FieldMeasure; Method = Field)

	DepthCollec (m)	Velocity (fps)	Air Temp (°C)	Water Temp (°C)	pH	DO (mg/L)	DO (%)	Specific Conductivity (uS/cm)	Salinity (ppt)	Turbidity (ntu)			
SUBSURF/MID/ BOTTOM/REP	0.2	0.6	13.3	18.3	6.59	11.12	--	19.3	11.4	29.6			
SUBSURF/MID/ BOTTOM/REP													
SUBSURF/MID/ BOTTOM/REP													
Instrument:	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	--	Horiba U-52	Horiba U-52	Horiba U-52			
Calib. Date:	11/28/18	11/28/18	11/28/18	11/28/18	11/28/18	11/28/18	--	11/28/18	11/28/18	11/28/18			

Samples Taken (# of containers filled) - Method=Water_Grab

Field Dup YES / NO: (SampleType = Grab / Integrated; LABEL_ID = FieldQA; create collection record upon data entry

SAMPLE TYPE: Grab / Integrated

COLLECTION DEVICE: Indiv bottle (by hand, by pole, by bucket); Teflon tubing; Kemmer; Pole & Beaker; Other _____

	DepthCollec (m)	Inorganics	Bacteria	Chl a	TSS / SSC	TOC / DOC	Total Hg	Dissolved Mercury	Total Metals	Dissolved Metals	Organics	Toxicity	VOAs
Sub/Surface	0.2	3			2				1		2		
Sub/Surface													

COMMENTS:
Surface water flowing towards ocean. Secchi disc not visible at 1.5 feet below water level.

SWAMP Field Data Sheet (Water Chemistry & Discrete Probe) - EventType=WQ

Entered in d-base (initial/date) | Pg 1 of 1 Pgs

*StationID: SFPP NORWALK PUMP STATION | *Date (mm/dd/yyyy): 1/15/2019 | *Group: NA | *Agency: Jacobs Engineering

*Funding: ___ ___ ___ ___ ___ ___ ___ ___ | ArrivalTime: 09:02 | DepartureTime: 10:40 | *SampleTime (1st sample):10:17 | *Protocol:

*ProjectCode: | *Personnel: N. Orliczky / K Carlson | *Purpose (circle applicable) WaterChem / WaterTox / Habitat / FieldMeas | *PurposeFailure:

*Location: Bank / Thalweg / Midchannel / OpenWater | *GPS/DGPS | Lat (dd.ddddd) | Long (ddd.ddddd) | OCCUPATION METHOD: Walk-in / Bridge / R/V _____ / Other

GPS Device: Google Earth | Target: | 33.74821 | -118.112072 | STARTING BANK (facing downstream): LB / RB / NA

Datum: NAD83 | Accuracy (ft / m): 1.59m | *Actual: | 33.747027 | -118.113248 | Point of Sample (if Integrated, then -88 in dbase)

Habitat Observations (CollectionMethod = Habitat_generic)

WADEABILITY: Y / N / Unk | BEAUFORT SCALE (see attachment): 1 | DISTANCE FROM BANK (m): 49 | STREAM WIDTH (m): 109 | WATER DEPTH (m): 3.2

SITE ODOR: None, Sulfides, Sewage, Petroleum, Smoke, Other_____

SKY CODE: Clear, Partly Cloudy, Overcast, Fog, Smoky, Hazy

WIND DIRECTION from: E

HYDROMODIFICATION: None, Bridge, Pipes, ConcreteChannel, GradeControl, Culvert, AerialZipline, Other | LOCATION (to sample): US / DS / WI / NA

OTHER PRESENCE: Vascular, Nonvascular, OilySheen, Foam, Trash, Other___

DOMINANT SUBSTRATE: Bedrock, Concrete, Cobble, Boulder, Gravel, Sand, Mud, Unk, Other_____

PHOTOS (RB & LB assigned when facing downstream; RENAME to StationCode_yyyy_mm_dd_uniquecode): 1: (RB / LB / BB / US / DS / ##)

WATERCLARITY: Clear (see bottom), Cloudy (>4" vis), Murky (<4" vis) | PRECIPITATION: None, Fog, Drizzle, Rain, Snow | 2: (RB / LB / BB / US / DS / ##)

WATERODOR: None, Sulfides, Sewage, Petroleum, Mixed, Other____ | PRECIPITATION (last 24 hrs): Unknown, <1", >1", None

WATERCOLOR: Colorless, Green, Yellow, Brown | EVIDENCE OF FIRES: No, <1 year, <5 years | 3: (RB / LB / BB / US / DS / ##)

OVERLAND RUNOFF (Last 24 hrs): none, light, moderate / heavy, unknown

OBSERVED FLOW: NA, Dry Waterbody Bed, No Obs Flow, Isolated Pool, Trickle (<0.1cfs), 0.1-1cfs, 1-5cfs, 5-20cfs, 20-50cfs, 50-200cfs, >200cfs

Field Measurements (SampleType = FieldMeasure; Method = Field)

	DepthCollec (m)	Velocity (fps)	Air Temp (°C)	Water Temp (°C)	pH	DO (mg/L)	DO (%)	Specific Conductivity (uS/cm)	Salinity (ppt)	Turbidity (ntu)			
SUBSURF/MID/ BOTTOM/REP	0.2	0.4	13.9	17.18	7.15	6.95	--	9.54	5.3	27.3			
SUBSURF/MID/ BOTTOM/REP													
SUBSURF/MID/ BOTTOM/REP													
Instrument:	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	Horiba U-52	--	Horiba U-52	Horiba U-52	Horiba U-52			
Calib. Date:	01/02/19	01/02/19	01/02/19	01/02/19	01/02/19	01/02/19	--	01/02/19	01/02/19	01/02/19			

Samples Taken (# of containers filled) - Method=Water_Grab

Field Dup YES / NO: (SampleType = Grab / Integrated; LABEL_ID = FieldQA; create collection record upon data entry

SAMPLE TYPE: Grab / Integrated | COLLECTION DEVICE: Indiv bottle (by hand, by pole, by bucket); Teflon tubing; Kemmer; Pole & Beaker; Other _____

	DepthCollec (m)	Inorganics	Bacteria	Chl a	TSS / SSC	TOC / DOC	Total Hg	Dissolved Mercury	Total Metals	Dissolved Metals	Organics	Toxicity	VOAs
Sub/Surface	0.2	3			2				1		2		
Sub/Surface													

COMMENTS:
Surface water flowing towards ocean. Secchi disc not visible at 1.5 feet below water level.

Attachment C
Laboratory Analytical Reports and Chain-of-Custody Documents

August 21, 2018

Eric Davis
CH2MHill
1000 Wilshire Blvd.
Los Angeles, CA 90017

TEL:
FAX:

Workorder No.: N031181

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on July 11, 2018 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Quennie Manimtim

Laboratory Director

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N031181

CASE NARRATIVE

tSAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Subcontracted Analyses:

EPA 8081 was subcontracted to Test America, Irvine, CA.

EPA 1668 was subcontracted to Pace Analytical Services, Inc., Minneapolis, MN.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for Zinc and Copper possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary due to sample matrix.

Analytical Comments for EPA 8270C_SIM:

Laboratory Control Sample (LCS) outside recovery criteria for Benzo(a)anthracene . NELAC standard allows for one analyte in marginal exceedence based on 11-30 analytes.

Surrogate recovery was below the laboratory acceptable limit. Reanalysis confirms low recovery caused by matrix effect.

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N031181
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N031181-001A	HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	7/11/2018	8/21/2018
N031181-001B	HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	7/11/2018	8/21/2018
N031181-001C	HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	7/11/2018	8/21/2018
N031181-001D	HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	7/11/2018	8/21/2018
N031181-001E	HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	7/11/2018	8/21/2018

CLIENT: CH2MHill
Lab Order: N031181
Project: SFPP Norwalk
Lab ID: N031181-001

Client Sample ID: HTTMDL-07-11
Collection Date: 7/11/2018 12:22:00 PM
Matrix: WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_180713A** QC Batch: **68837**				PrepDate:	**7/13/2018**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	25	10	10		mg/L	1	7/13/2018 09:40 AM
SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM							
			EPA 3510C		**EPA 8270CSIM**		
RunID: **NV00922-MS9_180718C** QC Batch: **68875**				PrepDate:	**7/17/2018**		Analyst: **JJS**
1-Methylnaphthalene	ND	0.041	0.21		ug/L	1	7/18/2018 02:25 PM
2-Methylnaphthalene	ND	0.059	0.21		ug/L	1	7/18/2018 02:25 PM
Acenaphthene	ND	0.050	0.21		ug/L	1	7/18/2018 02:25 PM
Acenaphthylene	ND	0.050	0.21		ug/L	1	7/18/2018 02:25 PM
Anthracene	ND	0.044	0.21		ug/L	1	7/18/2018 02:25 PM
Benzo(a)anthracene	ND	0.037	0.21		ug/L	1	7/18/2018 02:25 PM
Benzo(a)pyrene	ND	0.044	0.21		ug/L	1	7/18/2018 02:25 PM
Benzo(b)fluoranthene	ND	0.044	0.21		ug/L	1	7/18/2018 02:25 PM
Benzo(g,h,i)perylene	ND	0.067	0.21		ug/L	1	7/18/2018 02:25 PM
Benzo(k)fluoranthene	ND	0.056	0.21		ug/L	1	7/18/2018 02:25 PM
Chrysene	ND	0.044	0.21		ug/L	1	7/18/2018 02:25 PM
Dibenz(a,h)anthracene	ND	0.059	0.21		ug/L	1	7/18/2018 02:25 PM
Fluoranthene	ND	0.035	0.21		ug/L	1	7/18/2018 02:25 PM
Fluorene	ND	0.046	0.21		ug/L	1	7/18/2018 02:25 PM
Indeno(1,2,3-cd)pyrene	ND	0.060	0.21		ug/L	1	7/18/2018 02:25 PM
Naphthalene	ND	0.053	0.21		ug/L	1	7/18/2018 02:25 PM
Phenanthrene	ND	0.050	0.21		ug/L	1	7/18/2018 02:25 PM
Pyrene	ND	0.035	0.21		ug/L	1	7/18/2018 02:25 PM
Surr: 1,2-Dichlorobenzene-d4	29.0	0	27-100		%REC	1	7/18/2018 02:25 PM
Surr: 2-Fluorobiphenyl	33.0	0	34-135	S	%REC	1	7/18/2018 02:25 PM
Surr: 4-Terphenyl-d14	63.0	0	34-167		%REC	1	7/18/2018 02:25 PM
Surr: Nitrobenzene-d5	27.0	0	25-135		%REC	1	7/18/2018 02:25 PM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_180716A** QC Batch: **68843**				PrepDate:	**7/13/2018**		Analyst: **CEI**
Copper	ND	1.3	2.5		µg/L	5	7/16/2018 04:21 PM
Lead	ND	0.64	2.5		µg/L	5	7/16/2018 04:21 PM
Zinc	ND	1.3	5.0		µg/L	5	7/16/2018 04:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified
E	Value above quantitation range
J	Analyte detected below quantitation limits
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out

CLIENT: CH2MHill
Work Order: N031181
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-68837**	SampType: **LCS**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **7/13/2018**	RunNo: **126205**
Client ID: **LCSW**	Batch ID: **68837**	TestNo: **SM2540D**		Analysis Date: **7/13/2018**	SeqNo: **3078289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	939.000	10	1000	0	93.9	80	120				

Sample ID: **MB-68837**	SampType: **MBLK**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **7/13/2018**	RunNo: **126205**
Client ID: **PBW**	Batch ID: **68837**	TestNo: **SM2540D**		Analysis Date: **7/13/2018**	SeqNo: **3078290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N031181-001ADUP**	SampType: **DUP**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **7/13/2018**	RunNo: **126205**
Client ID: **ZZZZZZ**	Batch ID: **68837**	TestNo: **SM2540D**		Analysis Date: **7/13/2018**	SeqNo: **3078292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	26.000	10						25.00	3.92	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference		Calculations are based on raw values		

CLIENT: CH2MHill
Work Order: N031181
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_SFPP

Sample ID: **MB-68843** SampType: **MBLK** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **7/13/2018** RunNo: **126255**
Client ID: **PBW** Batch ID: **68843** TestNo: **EPA 200.8** Analysis Date: **7/16/2018** SeqNo: **3080137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.454	0.50									J
Lead	ND	0.50									
Zinc	ND	1.0									

Sample ID: **LCS-68843** SampType: **LCS** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **7/13/2018** RunNo: **126255**
Client ID: **LCSW** Batch ID: **68843** TestNo: **EPA 200.8** Analysis Date: **7/16/2018** SeqNo: **3080138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	10.729	0.50	10.00	0	107	85	115				
Lead	10.328	0.50	10.00	0	103	85	115				
Zinc	87.935	1.0	100.0	0	87.9	85	115				

Sample ID: **N031203-001C-DUP** SampType: **DUP** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **7/13/2018** RunNo: **126255**
Client ID: **ZZZZZZ** Batch ID: **68843** TestNo: **EPA 200.8** Analysis Date: **7/16/2018** SeqNo: **3080142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.50						0	0	20	
Lead	ND	0.50						0	0	20	
Zinc	ND	1.0						0	0	20	

Sample ID: **N031203-001C-MS** SampType: **MS** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **7/13/2018** RunNo: **126255**
Client ID: **ZZZZZZ** Batch ID: **68843** TestNo: **EPA 200.8** Analysis Date: **7/16/2018** SeqNo: **3080144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	7.644	0.50	10.00	0	76.4	75	125				
Lead	10.164	0.50	10.00	0	102	75	125				
Zinc	127.417	1.0	100.0	0	127	75	125				S

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N031181
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_SFPP

Sample ID: **N031203-001C-MSD** SampType: **MSD** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **7/13/2018** RunNo: **126255**
Client ID: **ZZZZZZ** Batch ID: **68843** TestNo: **EPA 200.8** Analysis Date: **7/16/2018** SeqNo: **3080145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	7.375	0.50	10.00	0	73.8	75	125	7.644	3.58	20	S
Lead	10.109	0.50	10.00	0	101	75	125	10.16	0.549	20	
Zinc	125.214	1.0	100.0	0	125	75	125	127.4	1.74	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference		Calculations are based on raw values		

CLIENT: CH2MHill
Work Order: N031181
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **LCS-68875** SampType: **LCS** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **7/17/2018** RunNo: **126370**
Client ID: **LCSW** Batch ID: **68875** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **7/18/2018** SeqNo: **3084984**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	0.490	0.20	1.000	0	49.0	36	121				
1-Methylnaphthalene	0.550	0.20	1.000	0	55.0	35	131				
Acenaphthene	0.590	0.20	1.000	0	59.0	39	125				
Acenaphthylene	0.680	0.20	1.000	0	68.0	43	140				
Anthracene	0.640	0.20	1.000	0	64.0	41	132				
Benzo(a)anthracene	0.580	0.20	1.000	0	58.0	58	141				S
Benzo(a)pyrene	0.500	0.20	1.000	0	50.0	31	142				
Benzo(b)fluoranthene	0.500	0.20	1.000	0	50.0	42	156				
Benzo(g,h,i)perylene	0.530	0.20	1.000	0	53.0	12	171				
Benzo(k)fluoranthene	0.580	0.20	1.000	0	58.0	49	165				
Chrysene	0.570	0.20	1.000	0	57.0	51	155				
Dibenz(a,h)anthracene	0.590	0.20	1.000	0	59.0	28	153				
Fluoranthene	0.710	0.20	1.000	0	71.0	47	158				
Fluorene	0.650	0.20	1.000	0	65.0	40	140				
Indeno(1,2,3-cd)pyrene	0.560	0.20	1.000	0	56.0	20	167				
Naphthalene	0.510	0.20	1.000	0	51.0	39	125				
Phenanthrene	0.610	0.20	1.000	0	61.0	46	144				
Pyrene	0.690	0.20	1.000	0	69.0	39	158				
Surr: 1,2-Dichlorobenzene-d4	0.520		1.000		52.0	27	100				
Surr: 2-Fluorobiphenyl	0.560		1.000		56.0	34	135				
Surr: 4-Terphenyl-d14	0.740		1.000		74.0	34	167				
Surr: Nitrobenzene-d5	0.470		1.000		47.0	25	135				

Sample ID: **LCSD-68875** SampType: **LCSD** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **7/17/2018** RunNo: **126370**
Client ID: **LCSS02** Batch ID: **68875** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **7/18/2018** SeqNo: **3084985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	0.510	0.20	1.000	0	51.0	36	121	0.4900	4.00	30	
1-Methylnaphthalene	0.570	0.20	1.000	0	57.0	35	131	0.5500	3.57	30	
Acenaphthene	0.620	0.20	1.000	0	62.0	39	125	0.5900	4.96	30	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N031181
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **LCSD-68875** SampType: **LCSD** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **7/17/2018** RunNo: **126370**
Client ID: **LCSS02** Batch ID: **68875** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **7/18/2018** SeqNo: **3084985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene	0.710	0.20	1.000	0	71.0	43	140	0.6800	4.32	30	
Anthracene	0.650	0.20	1.000	0	65.0	41	132	0.6400	1.55	30	
Benzo(a)anthracene	0.600	0.20	1.000	0	60.0	58	141	0.5800	3.39	30	
Benzo(a)pyrene	0.530	0.20	1.000	0	53.0	31	142	0.5000	5.83	30	
Benzo(b)fluoranthene	0.580	0.20	1.000	0	58.0	42	156	0.5000	14.8	30	
Benzo(g,h,i)perylene	0.560	0.20	1.000	0	56.0	12	171	0.5300	5.50	30	
Benzo(k)fluoranthene	0.550	0.20	1.000	0	55.0	49	165	0.5800	5.31	30	
Chrysene	0.600	0.20	1.000	0	60.0	51	155	0.5700	5.13	30	
Dibenz(a,h)anthracene	0.620	0.20	1.000	0	62.0	28	153	0.5900	4.96	30	
Fluoranthene	0.730	0.20	1.000	0	73.0	47	158	0.7100	2.78	30	
Fluorene	0.680	0.20	1.000	0	68.0	40	140	0.6500	4.51	30	
Indeno(1,2,3-cd)pyrene	0.590	0.20	1.000	0	59.0	20	167	0.5600	5.22	30	
Naphthalene	0.530	0.20	1.000	0	53.0	39	125	0.5100	3.85	30	
Phenanthrene	0.650	0.20	1.000	0	65.0	46	144	0.6100	6.35	30	
Pyrene	0.720	0.20	1.000	0	72.0	39	158	0.6900	4.26	30	
Surr: 1,2-Dichlorobenzene-d4	0.550		1.000		55.0	27	100		0		
Surr: 2-Fluorobiphenyl	0.590		1.000		59.0	34	135		0		
Surr: 4-Terphenyl-d14	0.750		1.000		75.0	34	167		0		
Surr: Nitrobenzene-d5	0.510		1.000		51.0	25	135		0		

Sample ID: **MB-68875** SampType: **MBLK** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **7/17/2018** RunNo: **126370**
Client ID: **PBW** Batch ID: **68875** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **7/18/2018** SeqNo: **3084986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	0.20									
1-Methylnaphthalene	ND	0.20									
Acenaphthene	ND	0.20									
Acenaphthylene	ND	0.20									
Anthracene	ND	0.20									
Benzo(a)anthracene	ND	0.20									

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N031181
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **MB-68875** SampType: **MBLK** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **7/17/2018** RunNo: **126370**
Client ID: **PBW** Batch ID: **68875** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **7/18/2018** SeqNo: **3084986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	ND	0.20									
Benzo(b)fluoranthene	ND	0.20									
Benzo(g,h,i)perylene	ND	0.20									
Benzo(k)fluoranthene	ND	0.20									
Chrysene	ND	0.20									
Dibenz(a,h)anthracene	ND	0.20									
Fluoranthene	ND	0.20									
Fluorene	ND	0.20									
Indeno(1,2,3-cd)pyrene	ND	0.20									
Naphthalene	ND	0.20									
Phenanthrene	ND	0.20									
Pyrene	ND	0.20									
Surr: 1,2-Dichlorobenzene-d4	0.440		1.000		44.0	27	100				
Surr: 2-Fluorobiphenyl	0.480		1.000		48.0	34	135				
Surr: 4-Terphenyl-d14	0.760		1.000		76.0	34	167				
Surr: Nitrobenzene-d5	0.420		1.000		42.0	25	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference		Calculations are based on raw values		

Asset Laboratories
3151 W. Post Road
Las Vegas, NV 89118
Tel: 702-307-2659 Fax: 702-307-2691
Marlon Cartin (marlon@assetlaboratories.com)

CHAIN OF CUSTODY RECORD

DATE: 7/11/2018
PAGE: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Sampler Information:	
Company:	Kinder Morgan Energy Partners Attention: Steve Defibaugh	Report To:	Eric Davis	Attention:	Steve Defibaugh - Ref. AFE# 81195	Sampler Name:	James Dye VLAD CALINO
Address:	1100 Town & Country Road Orange, CA 92868	Copy To:	Steve Defibaugh	Company Name:	Kinder Morgan Energy Partners	Sampler Signature:	
Email To:	steve_defibaugh@kindermorgan.com eric.davis@ch2m.com	Purchase Order No.:		Address:	1100 Town & Country Road Orange, CA 92868	Sample Date:	7-11-18
Phone: 714-560-4802	Fax: 714-560-4801	Project Name:	SFPP Norwalk	ATL Project Manager:	Marlon Cartin		

Section E
Required Sample Information

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLING DATE	SAMPLING TIME	TOTAL # OF CONTAINERS	Analysis Test	Total Suspended Solids (SM2540D)	Metals (EPA 200.8 Cu, Pb, Zn)	Pesticides (SW8081A, 2,4-DDT, 4,4-DDT)	PAHs (SW8270A-SIM)	Total PCBs (EPA 1668A)	Comments
CONTAINER TYPE									P	P	A	A	A	
# OF CONTAINERS									1	1	2	2	2	
PRESERVATIVE									X	N	Y	Y	Y	
VOLUME (mL)									1000	500	1000	1000	1000	
1	HTTMDL-07-11	Mouth of the San Gabriel River	WW	G	7/11/18	1222	4		x	x	x	x	x	N031181-01
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time
	7/11/18 1425		7/11/18 2:24
Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time
	7/11/18 2:30		7/12/18 0500
Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time

Turn Around Time (TAT):
- ☐A = Same Day
- ☐B = 24 Hours
- ☐C = 48 Hours
- ☐D = 72 Hours
- ☒E = 5 Workdays
- ☐E = 10 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Matrix:			Preservatives:			Container Type:			
W = Water	WW = Wastewater		H = HCl	N = HNO3	S = H2SO4	T = Tube	V = VOA	P = Pint	A = Amber
O = Oil	P = Product	S = Soil	Z = Zn(AC)2	O = NaOH	T = Na2S2O3	J = Jar	B = Tedlar	G = Glass	
Others/Specify:			Others/Specify:			M = Metal	P = Plastic	C = Can	

4 coc
1 kit

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	7/12/2018	Workorder:	N031181
Rep sample Temp (Deg C):	4.2	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	Golden State Overnight		
Last 4 digits of Tracking No.:	2526	Packing Material Used:	Bubble Wrap
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☑	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By MBC MBC 7/12/2018

Reviewed By: 07/13/18

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:

Test America - Irvine
17461 Derian Ave., Ste 100
Irvine, CA 92614

TEL: 969-261-1022
FAX: 949-260-3297
Acct #:

Field Sampler: V. Carino

12-Jul-18

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**EPA 8081A**		
N031181-001D / HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	32OZA	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N31181A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analtyze for 2,4-DDT (RL=0.1 ppb) and 4,4-DDT (RL - 0.05 ppb) by EPA 8081.

GSO# 541309245

		Date/Time			**Date/Time**
Relinquished by:		7/13/2018 @ 1700	**Received by:**		
Relinquished by:			**Received by:**		

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414

TEL: (612) 607-1700
FAX: (612) 607-6444
Acct #:

Field Sampler: SIGNED

12-Jul-18

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				1668c		
N031181-001E / HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	32OZA	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N31181B Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analyze for Total PCB by 1668 at 250 pg/L.

FED EX: 7726 9755 9070

		Date/Time			Date/Time
Relinquished by:	[signature]	7/12/18 @ 1535	**Received by:**		
Relinquished by:			**Received by:**		

ASSET Laboratories

WORK ORDER Summary

12-Jul-18

WorkOrder: N031181

Client ID: CH2HI03

Project: SFPP Norwalk **QC Level:** RTNE **Date Received:** 7/11/2018

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N031181-001A	HTTMDL-07-11	7/11/2018 12:22:00 PM	7/18/2018	Wastewater	SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/18/2018			Total Suspended Solids Prep	☐	☐	☐	WW
N031181-001B			7/18/2018			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/18/2018		EPA 200.8	TOTAL METALS BY ICPMS	☐	☐	☐	WW
N031181-001C			7/18/2018		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: 8270C - SIM	☐	☐	☐	WW
			7/18/2018		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WW
N031181-001D			7/18/2018		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: PESTICIDE	☐	☐	☐	WW
			7/18/2018		EPA 8081A	ORGANOCHLORINE PESTICIDES BY GC/ECD	☐	☐	☑	WW
N031181-001E			7/18/2018		1668c	PCB Congener	☐	☐	☑	WW
N031181-002A	FOLDER	7/18/2018	7/18/2018		Folder	Folder	☐	☐	☐	LAB
			7/18/2018		Folder	Folder	☐	☐	☐	LAB

GSO | a GLS company GLS

800-322-5555
www.gso.com

Ship From
ASSET LABORATORIES
MOLKY BRAR
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Ship To
ASSET LABORATORIES
MARLON CARTIN
3151 W. POST RD.,
LAS VEGAS, NV 89118

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:
HOLD FOR PICK-UP
Signature Type: NOT REQUIRED

Tracking #: 541282526

CPS

LVS

A

LAS VEGAS

C89102A

87180471

Print Date: 7/11/2018 5:49 PM

Package 1 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

4-2 ae
1 PH2

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-215803-1
Client Project/Site: N031181-001D

For:
Asset Laboratories
3151 W. Post Road
Las Vegas, Nevada 89118

Attn: Marlon Cartin

Authorized for release by:
8/10/2018 9:41:53 AM

Danielle Roberts, Senior Project Manager
(949)261-1022
danielle.roberts@testamericainc.com

Table of Contents

Sample Summary

Client: Asset Laboratories
Project/Site: N031181-001D

TestAmerica Job ID: 440-215803-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-215803-1	N031181-001D/HTTMDL-07-11	Water	07/11/18 12:22	07/14/18 11:05

Detection Summary

Client: Asset Laboratories
Project/Site: N031181-001D

TestAmerica Job ID: 440-215803-1

Client Sample ID: N031181-001D/HTTMDL-07-11 **Lab Sample ID: 440-215803-1**

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Asset Laboratories
Project/Site: N031181-001D

TestAmerica Job ID: 440-215803-1

Client Sample ID: N031181-001D/HTTMDL-07-11
Date Collected: 07/11/18 12:22
Date Received: 07/14/18 11:05

Lab Sample ID: 440-215803-1
Matrix: Water

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0052	0.0041	ug/L		07/17/18 11:55	07/18/18 11:21	1
4,4'-DDE	ND		0.0052	0.0031	ug/L		07/17/18 11:55	07/18/18 11:21	1
4,4'-DDT	ND		0.010	0.0041	ug/L		07/17/18 11:55	07/18/18 11:21	1
Aldrin	ND		0.0052	0.0015	ug/L		07/17/18 11:55	07/18/18 11:21	1
alpha-BHC	ND		0.0052	0.0026	ug/L		07/17/18 11:55	07/18/18 11:21	1
beta-BHC	ND		0.010	0.0041	ug/L		07/17/18 11:55	07/18/18 11:21	1
Chlordane (technical)	ND		0.10	0.082	ug/L		07/17/18 11:55	07/18/18 11:21	1
delta-BHC	ND		0.0052	0.0036	ug/L		07/17/18 11:55	07/18/18 11:21	1
Dieldrin	ND		0.0052	0.0021	ug/L		07/17/18 11:55	07/18/18 11:21	1
Endosulfan I	ND		0.0052	0.0031	ug/L		07/17/18 11:55	07/18/18 11:21	1
Endosulfan II	ND		0.0052	0.0021	ug/L		07/17/18 11:55	07/18/18 11:21	1
Endosulfan sulfate	ND		0.010	0.0031	ug/L		07/17/18 11:55	07/18/18 11:21	1
Endrin	ND		0.0052	0.0021	ug/L		07/17/18 11:55	07/18/18 11:21	1
Endrin aldehyde	ND		0.010	0.0021	ug/L		07/17/18 11:55	07/18/18 11:21	1
Endrin ketone	ND		0.010	0.0072	ug/L		07/17/18 11:55	07/18/18 11:21	1
gamma-BHC (Lindane)	ND		0.010	0.0031	ug/L		07/17/18 11:55	07/18/18 11:21	1
Heptachlor	ND		0.010	0.0031	ug/L		07/17/18 11:55	07/18/18 11:21	1
Heptachlor epoxide	ND		0.0052	0.0026	ug/L		07/17/18 11:55	07/18/18 11:21	1
Methoxychlor	ND		0.0052	0.0036	ug/L		07/17/18 11:55	07/18/18 11:21	1
Toxaphene	ND		0.52	0.26	ug/L		07/17/18 11:55	07/18/18 11:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*49*		*28 - 108*	*07/17/18 11:55*	*07/18/18 11:21*	*1*
Tetrachloro-m-xylene	*27*		*10 - 123*	*07/17/18 11:55*	*07/18/18 11:21*	*1*

Surrogate Summary

Client: Asset Laboratories
Project/Site: N031181-001D

TestAmerica Job ID: 440-215803-1

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		DCB2	TCX2								
Lab Sample ID	Client Sample ID	(28-108)	(10-123)								
440-215803-1	N031181-001D/HTTMDL-07-11	49	27								
LCS 440-487942/2-A	Lab Control Sample	86	57								
LCSD 440-487942/3-A	Lab Control Sample Dup	81	55								
MB 440-487942/1-A	Method Blank	69	45								

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Method Summary

Client: Asset Laboratories
Project/Site: N031181-001D

TestAmerica Job ID: 440-215803-1

Method	Method Description	Protocol	Laboratory
8081A	Organochlorine Pesticides (GC)	SW846	TAL IRV
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL IRV

Protocol References:

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

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Asset Laboratories
Project/Site: N031181-001D

TestAmerica Job ID: 440-215803-1

Client Sample ID: N031181-001D/HTTMDL-07-11
Date Collected: 07/11/18 12:22
Date Received: 07/14/18 11:05

Lab Sample ID: 440-215803-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			970 mL	2 mL	487942	07/17/18 11:55	AJP	TAL IRV
Total/NA	Analysis	8081A		1			488121	07/18/18 11:21	D1D	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 440-487942/1-A
Matrix: Water
Analysis Batch: 488121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 487942

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0050	0.0040	ug/L		07/17/18 11:55	07/18/18 09:53	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		07/17/18 11:55	07/18/18 09:53	1
4,4'-DDT	ND		0.010	0.0040	ug/L		07/17/18 11:55	07/18/18 09:53	1
Aldrin	ND		0.0050	0.0015	ug/L		07/17/18 11:55	07/18/18 09:53	1
alpha-BHC	ND		0.0050	0.0025	ug/L		07/17/18 11:55	07/18/18 09:53	1
beta-BHC	ND		0.010	0.0040	ug/L		07/17/18 11:55	07/18/18 09:53	1
Chlordane (technical)	ND		0.10	0.080	ug/L		07/17/18 11:55	07/18/18 09:53	1
delta-BHC	ND		0.0050	0.0035	ug/L		07/17/18 11:55	07/18/18 09:53	1
Dieldrin	ND		0.0050	0.0020	ug/L		07/17/18 11:55	07/18/18 09:53	1
Endosulfan I	ND		0.0050	0.0030	ug/L		07/17/18 11:55	07/18/18 09:53	1
Endosulfan II	ND		0.0050	0.0020	ug/L		07/17/18 11:55	07/18/18 09:53	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		07/17/18 11:55	07/18/18 09:53	1
Endrin	ND		0.0050	0.0020	ug/L		07/17/18 11:55	07/18/18 09:53	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		07/17/18 11:55	07/18/18 09:53	1
Endrin ketone	ND		0.010	0.0070	ug/L		07/17/18 11:55	07/18/18 09:53	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		07/17/18 11:55	07/18/18 09:53	1
Heptachlor	ND		0.010	0.0030	ug/L		07/17/18 11:55	07/18/18 09:53	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		07/17/18 11:55	07/18/18 09:53	1
Methoxychlor	ND		0.0050	0.0035	ug/L		07/17/18 11:55	07/18/18 09:53	1
Toxaphene	ND		0.50	0.25	ug/L		07/17/18 11:55	07/18/18 09:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*69*		*28 - 108*	*07/17/18 11:55*	*07/18/18 09:53*	*1*
Tetrachloro-m-xylene	*45*		*10 - 123*	*07/17/18 11:55*	*07/18/18 09:53*	*1*

Lab Sample ID: LCS 440-487942/2-A
Matrix: Water
Analysis Batch: 488121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 487942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	0.200	0.168		ug/L		84	50 - 128
4,4'-DDE	0.200	0.159		ug/L		79	49 - 121
4,4'-DDT	0.200	0.182		ug/L		91	41 - 140
Aldrin	0.200	0.127		ug/L		64	37 - 115
alpha-BHC	0.200	0.150		ug/L		75	44 - 115
beta-BHC	0.200	0.158		ug/L		79	46 - 121
delta-BHC	0.200	0.159		ug/L		79	32 - 129
Dieldrin	0.200	0.167		ug/L		84	39 - 126
Endosulfan I	0.200	0.168		ug/L		84	47 - 115
Endosulfan II	0.200	0.178		ug/L		89	47 - 120
Endosulfan sulfate	0.200	0.169		ug/L		85	48 - 126
Endrin	0.200	0.180		ug/L		90	43 - 127
Endrin aldehyde	0.200	0.167		ug/L		84	43 - 120
Endrin ketone	0.200	0.164		ug/L		82	47 - 123
gamma-BHC (Lindane)	0.200	0.154		ug/L		77	45 - 116
Heptachlor	0.200	0.140		ug/L		70	37 - 115
Heptachlor epoxide	0.200	0.166		ug/L		83	41 - 129
Methoxychlor	0.200	0.185		ug/L		93	44 - 141

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	86		28 - 108
Tetrachloro-m-xylene	57		10 - 123

Lab Sample ID: LCSD 440-487942/3-A
Matrix: Water
Analysis Batch: 488121

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 487942

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD			0.200	0.155		ug/L		77	50 - 128	8	26
4,4'-DDE			0.200	0.150		ug/L		75	49 - 121	5	22
4,4'-DDT			0.200	0.165		ug/L		82	41 - 140	10	20
Aldrin			0.200	0.117		ug/L		59	37 - 115	8	24
alpha-BHC			0.200	0.143		ug/L		71	44 - 115	5	26
beta-BHC			0.200	0.150		ug/L		75	46 - 121	5	27
delta-BHC			0.200	0.149		ug/L		75	32 - 129	6	35
Dieldrin			0.200	0.153		ug/L		76	39 - 126	9	35
Endosulfan I			0.200	0.155		ug/L		77	47 - 115	8	27
Endosulfan II			0.200	0.163		ug/L		82	47 - 120	9	29
Endosulfan sulfate			0.200	0.155		ug/L		78	48 - 126	9	26
Endrin			0.200	0.164		ug/L		82	43 - 127	10	35
Endrin aldehyde			0.200	0.154		ug/L		77	43 - 120	8	35
Endrin ketone			0.200	0.148		ug/L		74	47 - 123	11	27
gamma-BHC (Lindane)			0.200	0.144		ug/L		72	45 - 116	7	28
Heptachlor			0.200	0.126		ug/L		63	37 - 115	11	35
Heptachlor epoxide			0.200	0.153		ug/L		77	41 - 129	8	35
Methoxychlor			0.200	0.167		ug/L		83	44 - 141	10	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	81		28 - 108
Tetrachloro-m-xylene	55		10 - 123

QC Association Summary

Client: Asset Laboratories
Project/Site: N031181-001D

TestAmerica Job ID: 440-215803-1

GC Semi VOA

Prep Batch: 487942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-215803-1	N031181-001D/HTTMDL-07-11	Total/NA	Water	3510C	
MB 440-487942/1-A	Method Blank	Total/NA	Water	3510C	
LCS 440-487942/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 440-487942/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 488121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-215803-1	N031181-001D/HTTMDL-07-11	Total/NA	Water	8081A	487942
MB 440-487942/1-A	Method Blank	Total/NA	Water	8081A	487942
LCS 440-487942/2-A	Lab Control Sample	Total/NA	Water	8081A	487942
LCSD 440-487942/3-A	Lab Control Sample Dup	Total/NA	Water	8081A	487942

Glossary

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

Accreditation/Certification Summary

Client: Asset Laboratories
Project/Site: N031181-001D

TestAmerica Job ID: 440-215803-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	LA Cty Sanitation Districts	9	10256	06-30-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8081A	3510C	Water	4,4'-DDD
8081A	3510C	Water	4,4'-DDE
8081A	3510C	Water	4,4'-DDT
8081A	3510C	Water	Aldrin
8081A	3510C	Water	alpha-BHC
8081A	3510C	Water	beta-BHC
8081A	3510C	Water	Chlordane (technical)
8081A	3510C	Water	delta-BHC
8081A	3510C	Water	Dieldrin
8081A	3510C	Water	Endosulfan I
8081A	3510C	Water	Endosulfan II
8081A	3510C	Water	Endosulfan sulfate
8081A	3510C	Water	Endrin
8081A	3510C	Water	Endrin aldehyde
8081A	3510C	Water	Endrin ketone
8081A	3510C	Water	gamma-BHC (Lindane)
8081A	3510C	Water	Heptachlor
8081A	3510C	Water	Heptachlor epoxide
8081A	3510C	Water	Methoxychlor
8081A	3510C	Water	Toxaphene

California	State Program	9	CA ELAP 2706	06-30-19	

Analysis Method	Prep Method	Matrix	Analyte

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:

Test America - Irvine
17461 Derian Ave , Ste 100
Irvine, CA 92614

TEL: 969-261-1022
FAX: 949-260-3297
Acct #:

Field Sampler: V Canno

12-Jul-18

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: EPA 8081A	
N031181-001D / HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	32OZA	1	

440-215803 Chain of Custody

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO# N31181A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analtyze for 2,4-DDT (RL=0.1 ppb) and 4,4-DDT (RL - 0.05 ppb) by EPA 8081.

GSO# 541309245

Relinquished by: _____ **Date/Time** 7/13/2018 @ 1700 **Received by:** _____ FAIRV **Date/Time** 7/14/18 1105

Relinquished by: GSO# 541309245 **Received by:** 1315 1289

Login Sample Receipt Checklist

Client: Asset Laboratories

Job Number: 440-215803-1

Login Number: 215803
List Number: 1
Creator: Avila, Stephanie 1

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Marlon Cartin
Asset Laboratories
3151 West Post Road
Las Vegas NV 89118

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10439464
Sample Receipt Date: 07/13/2018
Client Project #: N031181-001E/HTTMDL-07-11
Client Sub PO #: N31181B
State Cert #: 2929

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Joanne Richardson, your Pace Project Manager.

This report has been reviewed by:

Joanne Richardson

August 21, 2018

Joanne Richardson,
(612) 607-6453
(612) 607-6444 (fax)

Report Prepared Date:
August 21, 2018

Report of Laboratory Analysis

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on one sample submitted by a representative of Asset Laboratories. The sample was analyzed for the presence or absence of polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to the signal to noise based estimated detection limits and were adjusted for the total amount of sample extracted. Results below the calibration range were flagged "J" as estimated concentrations.

The recoveries of the isotopically-labeled PCB internal standards in the sample extract ranged from 66-95%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1668A. Since the quantification of the native congeners was based on isotope dilution and internal standard methodology, the data were automatically corrected for variation in recovery and accurate values were obtained.

Incorrect isotope ratios were obtained for selected PCB congeners. The affected congeners were flagged "I" on the results tables.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain trace levels of selected PCB congeners. Any congeners that were present at similar levels in both the method blank and sample extracts were flagged "B" to indicate that they may have, at least partiallty, originated in the laboratory.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native compounds were recovered at 94-113%, with relative percent differences of 0.0-16.3%. These values were within method limits. Matrix spikes were not extracted with this sample batch.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
A2LA	2926.01	Minnesota - Pet	1240
Alabama	40770	Mississippi	MN00064
Alaska - DW	MN00064	Montana	CERT0092
Alaska - UST	17-009	Nebraska	NE-OS-18-06
Arizona	AZ0014	Nevada	MN00064
Arkansas - DW	MN00064	New Hampshire	2081
Arkansas - WW	88-0680	New Jersey (NE	MN002
CNMI Saipan	MP0003	New York	11647
California	2929	North Carolina	27700
Colorado	MN00064	North Carolina -	27700
Connecticut	PH-0256	North Carolina -	530
EPA Region 8+	via MN 027-053	North Dakota	R-036
Florida (NELAP	E87605	Ohio - DW	41244
Georgia	959	Ohio - VAP	CL101
Guam	17-001r	Oklahoma	9507
Hawaii	MN00064	Oregon - Primar	MN300001
Idaho	MN00064	Oregon - Secon	MN200001
Illinois	200011	Pennsylvania	68-00563
Indiana	C-MN-01	Puerto Rico	MN00064
Iowa	368	South Carolina	74003
Kansas	E-10167	South Dakota	NA
Kentucky - DW	90062	Tennessee	TN02818
Kentucky - WW	90062	Texas	T104704192
Louisiana - DE	03086	Utah (NELAP)	MN00064
Louisiana - DW	MN00064	Virginia	460163
Maine	MN00064	Washington	C486
Maryland	322	West Virginia -	382
Massachusetts	M-MN064	West Virginia -	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming - UST	2926.01
Minnesota - De	via MN 027-053		

REPORT OF LABORATORY ANALYSIS

Appendix A

Sample Management

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUST

WO# : 10439464

10439464

QC Level: RTNE

Subcontractor:

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414

TEL: (612) 607-1700
FAX: (612) 607-6444
Acct #:

Field Sampler: SIGNED

12-Jul-18

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				1668c		
N031181-001E / HTTMDL-07-11	Wastewater	7/11/2018 12:22:00 PM	32OZA	1		OC1

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N31181B Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analyze for Total PCB by 1668 at 250 pg/L.

FED EX: 7726 9755 9070

		Date/Time			Date/Time
Relinquished by:	[signature]	7/12/18@1535	**Received by:**	AMS/ Pace	7/13/18 1945
Relinquished by:			**Received by:**		

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 02May2018 Page 1 of 2
	Document No.: **F-MN-L-213-rev.23**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Asset Laboratories

Project #: WO#: 10439464

PM: JMR Due Date: 07/30/18

CLIENT: Asset Labs

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other:

Tracking Number: 772b 9755 9070

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☐ Yes ☑ No

Thermometer Used: ☑ G87A9170600254 ☐ G87A9155100842

Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Cooler Temp Read (°C): 3.4 **Cooler Temp Corrected (°C):** 3.4 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** True **Date and Initials of Person Examining Contents:** 7.13.18 A. H

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No		1.
Chain of Custody Filled Out?	☑ Yes	☐ No		2.
Chain of Custody Relinquished?	☑ Yes	☐ No		3.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No		5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		6.
Rush Turn Around Time Requested?	☐ Yes	☑ No		7.
Sufficient Volume?	☑ Yes	☐ No		8.
Correct Containers Used?	☑ Yes	☐ No		9.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Is sufficient information available to reconcile the samples to the COC? Matrix: WT	☑ Yes	☐ No		12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH Positive for Res. Chlorine? Y N
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Joanne Richardson **Date:** 7-16-18

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interferencepresent

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

REPORT OF LABORATORY ANALYSIS

Appendix B

Sample Analysis Summary

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Asset Laboratories

Client's Sample ID	N031181-001E/HTTMDL-07-11		
Lab Sample ID	10439464001		
Filename	P180817A_06		
Injected By	CVS		
Total Amount Extracted	998 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	07/11/2018 12:22
ICAL ID	P180817A02	Received	07/13/2018 18:02
CCal Filename(s)	P180817A_03	Extracted	08/13/2018 13:30
Method Blank ID	BLANK-64013	Analyzed	08/17/2018 14:08

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.791	3.17	2.0	1.59	79
13C-4-MoCB	3	12.547	3.15	2.0	1.62	81
13C-2,2'-DiCB	4	12.835	1.55	2.0	1.31	66
13C-4,4'-DiCB	15	19.914	1.60	2.0	1.54	77
13C-2,2',6-TrCB	19	16.619	1.16	2.0	1.43	71
13C-3,4,4'-TrCB	37	27.674	1.07	2.0	1.69	85
13C-2,2',6,6'-TeCB	54	20.212	0.80	2.0	1.50	75
13C-3,4,4',5-TeCB	81	34.805	0.80	2.0	1.76	88
13C-3,3',4,4'-TeCB	77	35.409	0.81	2.0	1.73	87
13C-2,2',4,6,6'-PeCB	104	26.265	1.63	2.0	1.39	70
13C-2,3,3',4,4'-PeCB	105	38.986	1.58	2.0	1.69	84
13C-2,3,4,4',5-PeCB	114	38.298	1.58	2.0	1.65	82
13C-2,3',4,4',5-PeCB	118	37.745	1.60	2.0	1.67	84
13C-2,3',4,4',5'-PeCB	123	37.410	1.58	2.0	1.64	82
13C-3,3',4,4',5-PeCB	126	42.172	1.59	2.0	1.91	95
13C-2,2',4,4',6,6'-HxCB	155	32.273	1.22	2.0	1.34	67
13C-HxCB(156/157)	156/157	45.212	1.28	4.0	3.24	81
13C-2,3',4,4',5,5'-HxCB	167	44.005	1.28	2.0	1.55	77
13C-3,3',4,4',5,5'-HxCB	169	48.515	1.28	2.0	1.87	93
13C-2,2',3,4',5,6,6'-HpCB	188	38.198	1.05	2.0	1.31	65
13C-2,3,3',4,4',5,5'-HpCB	189	51.021	1.05	2.0	1.62	81
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.686	0.91	2.0	1.37	68
13C-2,3,3',4,4',5,5',6-OcCB	205	53.068	0.89	2.0	1.75	87
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.491	0.78	2.0	1.62	81
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.460	0.78	2.0	1.39	69
13C--DeCB	209	55.956	0.69	2.0	1.73	87
CleanupStandards						
13C-2,4,4'-TrCB	28	23.280	1.07	2.0	2.06	103
13C-2,3,3',5,5'-PeCB	111	35.342	1.57	2.0	1.81	91
13C-2,2',3,3',5,5',6-HpCB	178	41.333	1.06	2.0	1.73	86
Recovery Standards						
13C-2,5-DiCB	9	15.253	1.57	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.259	0.81	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	32.558	1.59	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.931	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.702	0.90	2.0	NA	NA

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID N031181-001E/HTTMDL-07-11
Lab Sample ID 10439464001
Filename P180817A_06

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L		EMPC pg/L	EML pg/L
1		9.803	3.02	3.53	J	---	1.33
2		12.343	2.60 I	---	J	2.31	1.20
3		12.571	3.30	2.99	BJ	---	1.84
4		12.870	1.42	10.6	J	---	6.66
5		---	---	ND		---	4.19
6		---	---	ND		---	3.61
7		15.481	1.41	4.65	J	---	3.48
8		16.295	1.34	13.0	BJ	---	3.31
9		---	---	ND		---	3.79
10		---	---	ND		---	4.13
11		19.195	1.52	83.3	BJ	---	3.85
12	12/13	---	---	ND		---	3.81
13	12/13	---	---	ND		---	3.81
14		---	---	ND		---	3.74
15		19.938	1.48	4.42	J	---	4.30
16		19.818	1.21 I	---	J	5.95	2.79
17		19.279	1.06	8.12	BJ	---	2.44
18	18/30	18.812	1.01	14.4	BJ	---	2.02
19		16.619	1.16	3.62	J	---	2.61
20	20/28	23.314	1.13	21.6	BJ	---	1.71
21	21/33	23.565	1.10	9.70	BJ	---	1.74
22		24.001	1.03	5.97	BJ	---	1.74
23		---	---	ND		---	1.65
24		---	---	ND		---	1.76
25		22.626	1.08	2.01	J	---	1.70
26	26/29	22.358	1.37 I	---	J	3.13	1.68
27		19.543	1.08	2.27	J	---	1.82
28	20/28	23.314	1.13	(21.6)	BJ	---	1.71
29	26/29	22.358	1.37 I	---	J	(3.13)	1.68
30	18/30	18.812	1.01	(14.4)	BJ	---	2.02
31		22.978	1.05	14.5	BJ	---	1.63
32		20.413	0.90	5.70	BJ	---	1.66
33	21/33	23.565	1.10	(9.70)	BJ	---	1.74
34		---	---	ND		---	1.80
35		---	---	ND		---	1.72
36		---	---	ND		---	1.66
37		27.707	0.90	4.13	BJ	---	1.95
38		---	---	ND		---	1.70
39		---	---	ND		---	1.61
40	40/41/71	27.489	0.88	10.7	BJ	---	1.45
41	40/41/71	27.489	0.88	(10.7)	BJ	---	1.45
42		26.919	0.88	6.86	J	---	1.67
43	43/73	---	---	ND		---	1.29
44	44/47/65	26.399	0.84	27.4	BJ	---	1.33
45	45/51	23.465	0.89	8.48	BJ	---	1.50
46		---	---	ND		---	1.71
47	44/47/65	26.399	0.84	(27.4)	BJ	---	1.33
48		26.097	0.78	4.11	J	---	1.42

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID N031181-001E/HTTMDL-07-11
Lab Sample ID 10439464001
Filename P180817A_06

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L		EMPC pg/L	EML pg/L
49	49/69	25.812	0.79	19.7	BJ	---	1.29
50	50/53	22.643	0.81	6.10	J	---	1.41
51	45/51	23.465	0.89	(8.48)	BJ	---	1.50
52		25.276	0.79	40.7	BJ	---	1.49
53	50/53	22.643	0.81	(6.10)	J	---	1.41
54		---	---	ND		---	1.07
55		---	---	ND		---	1.09
56		31.485	0.77	8.60	BJ	---	1.11
57		---	---	ND		---	1.07
58		---	---	ND		---	1.07
59	59/62/75	26.751	0.85	1.89	J	---	1.06
60		31.720	0.79	2.95	J	---	1.11
61	61/70/74/76	30.429	0.84	29.7	BJ	---	1.08
62	59/62/75	26.751	0.85	(1.89)	J	---	1.06
63		---	---	ND		---	1.07
64		27.724	0.76	8.56	BJ	---	1.13
65	44/47/65	26.399	0.84	(27.4)	BJ	---	1.33
66		30.781	0.72	21.3	J	---	1.08
67		---	---	ND		---	0.939
68		---	---	ND		---	1.07
69	49/69	25.812	0.79	(19.7)	BJ	---	1.29
70	61/70/74/76	30.429	0.84	(29.7)	BJ	---	1.08
71	40/41/71	27.489	0.88	(10.7)	BJ	---	1.45
72		---	---	ND		---	1.05
73	43/73	---	---	ND		---	1.29
74	61/70/74/76	30.429	0.84	(29.7)	BJ	---	1.08
75	59/62/75	26.751	0.85	(1.89)	J	---	1.06
76	61/70/74/76	30.429	0.84	(29.7)	BJ	---	1.08
77		35.392	0.73	3.17	BJ	---	1.19
78		---	---	ND		---	1.05
79		---	---	ND		---	0.900
80		---	---	ND		---	0.950
81		---	---	ND		---	1.14
82		35.007	1.39	2.85	J	---	1.96
83		33.078	1.70	2.46	J	---	2.41
84		30.663	1.50	9.23	J	---	2.03
85	85/116/117	34.503	1.48	5.79	J	---	1.42
86	86/87/97/108/119/125	33.715	1.45	20.3	J	---	1.50
87	86/87/97/108/119/125	33.715	1.45	(20.3)	J	---	1.50
88	88/91	30.412	1.49	5.26	J	---	1.86
89		---	---	ND		---	1.98
90	90/101/113	32.575	1.55	33.2	J	---	1.52
91	88/91	30.412	1.49	(5.26)	J	---	1.86
92		31.955	1.65	7.14	J	---	1.86
93	93/98/100/102	29.825	1.94 I	---	J	2.58	1.86
94		---	---	ND		---	1.94
95		29.507	1.50	25.3	J	---	1.75
96		---	---	ND		---	0.658

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Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID N031181-001E/HTTMDL-07-11
Lab Sample ID 10439464001
Filename P180817A_06

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L		EMPC pg/L	EML pg/L
97	86/87/97/108/119/125	33.715	1.45	(20.3)	J	---	1.50
98	93/98/100/102	29.825	1.94 I	---	J	(2.58)	1.86
99		33.195	1.65	16.0	J	---	1.39
100	93/98/100/102	29.825	1.94 I	---	J	(2.58)	1.86
101	90/101/113	32.575	1.55	(33.2)	J	---	1.52
102	93/98/100/102	29.825	1.94 I	---	J	(2.58)	1.86
103		---	---	ND		---	1.65
104		---	---	ND		---	0.649
105		39.003	1.52	9.41	J	---	0.985
106		---	---	ND		---	0.876
107	107/124	37.057	1.13 I	---	J	1.08	0.895
108	86/87/97/108/119/125	33.715	1.45	(20.3)	J	---	1.50
109		37.309	1.28 I	---	J	2.07	0.882
110	110/115	34.654	1.59	33.2	J	---	1.30
111		---	---	ND		---	1.20
112		---	---	ND		---	1.20
113	90/101/113	32.575	1.55	(33.2)	J	---	1.52
114		---	---	ND		---	1.02
115	110/115	34.654	1.59	(33.2)	J	---	1.30
116	85/116/117	34.503	1.48	(5.79)	J	---	1.42
117	85/116/117	34.503	1.48	(5.79)	J	---	1.42
118		37.778	1.70	26.0	J	---	0.913
119	86/87/97/108/119/125	33.715	1.45	(20.3)	J	---	1.50
120		---	---	ND		---	1.17
121		---	---	ND		---	1.30
122		---	---	ND		---	0.950
123		---	---	ND		---	0.988
124	107/124	37.057	1.13 I	---	J	(1.08)	0.895
125	86/87/97/108/119/125	33.715	1.45	(20.3)	J	---	1.50
126		---	---	ND		---	1.02
127		---	---	ND		---	0.870
128	128/166	42.273	1.10	4.69	J	---	1.57
129	129/138/163	40.948	1.32	29.9	J	---	1.83
130		---	---	ND		---	2.17
131		---	---	ND		---	2.39
132		37.862	1.37	7.86	J	---	2.14
133		---	---	ND		---	2.05
134	134/143	---	---	ND		---	2.32
135	135/151	35.577	1.30	7.77	J	---	0.907
136		33.128	1.52 I	---	J	3.14	0.668
137		---	---	ND		---	1.96
138	129/138/163	40.948	1.32	(29.9)	J	---	1.83
139	139/140	---	---	ND		---	1.83
140	139/140	---	---	ND		---	1.83
141		39.858	1.45 I	---	J	2.12	1.85
142		---	---	ND		---	2.21
143	134/143	---	---	ND		---	2.32
144		36.180	1.30	1.15	J	---	0.873

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID N031181-001E/HTTMDL-07-11
Lab Sample ID 10439464001
Filename P180817A_06

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L		EMPC pg/L	EML pg/L
145		---	---	ND		---	0.661
146		38.969	1.16	4.98	J	---	1.79
147	147/149	36.571	1.15	19.3	J	---	1.88
148		---	---	ND		---	0.897
149	147/149	36.571	1.15	(19.3)	J	---	1.88
150		---	---	ND		---	0.645
151	135/151	35.577	1.30	(7.77)	J	---	0.907
152		---	---	ND		---	0.664
153	153/168	39.640	1.29	21.3	J	---	1.49
154		---	---	ND		---	0.739
155		---	---	ND		---	0.551
156	156/157	45.195	1.30	3.43	J	---	1.81
157	156/157	45.195	1.30	(3.43)	J	---	1.81
158		41.384	1.28	2.18	J	---	1.24
159		---	---	ND		---	1.31
160		---	---	ND		---	1.38
161		---	---	ND		---	1.34
162		---	---	ND		---	1.29
163	129/138/163	40.948	1.32	(29.9)	J	---	1.83
164		40.629	1.20	1.49	J	---	1.34
165		---	---	ND		---	1.48
166	128/166	42.273	1.10	(4.69)	J	---	1.57
167		---	---	ND		---	1.34
168	153/168	39.640	1.29	(21.3)	J	---	1.49
169		---	---	ND		---	1.44
170		47.895	1.05	3.61	J	---	2.00
171	171/173	---	---	ND		---	2.08
172		---	---	ND		---	2.02
173	171/173	---	---	ND		---	2.08
174		43.167	0.91	3.32	J	---	1.86
175		---	---	ND		---	1.18
176		---	---	ND		---	0.923
177		43.653	0.89	3.65	J	---	2.16
178		---	---	ND		---	1.30
179		38.600	1.09	2.35	J	---	0.897
180	180/193	46.570	1.07	9.20	J	---	1.60
181		---	---	ND		---	1.91
182		---	---	ND		---	1.14
183	183/185	42.932	1.04	3.48	J	---	1.89
184		---	---	ND		---	0.869
185	183/185	42.932	1.04	(3.48)	J	---	1.89
186		---	---	ND		---	0.927
187		42.289	1.04	7.40	J	---	1.10
188		---	---	ND		---	0.917
189		---	---	ND		---	1.18
190		---	---	ND		---	1.40
191		---	---	ND		---	1.45
192		46.185	2.84 I	---	J	2.53	1.52

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID N031181-001E/HTTMDL-07-11
Lab Sample ID 10439464001
Filename P180817A_06

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L		EMPC pg/L	EML pg/L
193	180/193	46.570	1.07	(9.20)	J	---	1.60
194		52.723	0.67 I	---	J	2.26	0.997
195		50.805	0.82	1.39	J	---	1.15
196		---	---	ND		---	1.37
197	197/200	---	---	ND		---	1.01
198	198/199	48.532	1.06 I	---	J	2.74	1.38
199	198/199	48.532	1.06 I	---	J	(2.74)	1.38
200	197/200	---	---	ND		---	1.01
201		---	---	ND		---	1.02
202		---	---	ND		---	1.17
203		49.404	0.95	2.00	J	---	1.23
204		---	---	ND		---	1.04
205		---	---	ND		---	0.754
206		54.534	0.87	2.79	J	---	1.36
207		---	---	ND		---	1.09
208		---	---	ND		---	1.20
209		---	---	ND		---	0.985

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N031181-001E/HTTMDL-07-11
Lab Sample ID	10439464001
Filename	P180817A_06

Congener Group	Concentration pg/L
Total Monochloro Biphenyls	6.52
Total Dichloro Biphenyls	116
Total Trichloro Biphenyls	92.0
Total Tetrachloro Biphenyls	200
Total Pentachloro Biphenyls	196
Total Hexachloro Biphenyls	104
Total Heptachloro Biphenyls	33.0
Total Octachloro Biphenyls	3.39
Total Nonachloro Biphenyls	2.79
DecachloroBiphenyls	ND
Total PCBs	754

ND = Not Detected

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-64013		
Filename	P180817A_05		
Injected By	CVS	Matrix	Water
Total Amount Extracted	1800 mL	Extracted	08/13/2018 13:30
ICAL ID	P180817A02	Analyzed	08/17/2018 13:08
CCal Filename(s)	P180817A_03	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.743	3.00	2.0	1.66	83
13C-4-MoCB	3	12.523	3.17	2.0	1.69	84
13C-2,2'-DiCB	4	12.799	1.56	2.0	1.39	69
13C-4,4'-DiCB	15	19.914	1.59	2.0	1.66	83
13C-2,2',6-TrCB	19	16.607	1.12	2.0	1.45	72
13C-3,4,4'-TrCB	37	27.692	1.12	2.0	1.85	92
13C-2,2',6,6'-TeCB	54	20.195	0.79	2.0	1.59	80
13C-3,4,4',5-TeCB	81	34.825	0.81	2.0	1.91	96
13C-3,3',4,4'-TeCB	77	35.412	0.82	2.0	1.91	96
13C-2,2',4,6,6'-PeCB	104	26.266	1.55	2.0	1.47	74
13C-2,3,3',4,4'-PeCB	105	38.989	1.58	2.0	1.91	95
13C-2,3,4,4',5-PeCB	114	38.319	1.59	2.0	1.85	93
13C-2,3',4,4',5-PeCB	118	37.749	1.60	2.0	1.88	94
13C-2,3',4,4',5'-PeCB	123	37.413	1.60	2.0	1.86	93
13C-3,3',4,4',5-PeCB	126	42.176	1.59	2.0	2.14	107
13C-2,2',4,4',6,6'-HxCB	155	32.276	1.24	2.0	1.38	69
13C-HxCB (156/157)	156/157	45.216	1.26	4.0	3.41	85
13C-2,3',4,4',5,5'-HxCB	167	44.009	1.30	2.0	1.66	83
13C-3,3',4,4',5,5'-HxCB	169	48.520	1.30	2.0	2.01	100
13C-2,2',3,4',5,6,6'-HpCB	188	38.201	1.03	2.0	1.52	76
13C-2,3,3',4,4',5,5'-HpCB	189	51.026	1.07	2.0	1.93	96
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.690	0.91	2.0	1.59	79
13C-2,3,3',4,4',5,5',6-OcCB	205	53.074	0.90	2.0	1.89	94
13C-2,2',3,3',4,4',5,5',6-NoCB	206	54.497	0.78	2.0	1.84	92
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.466	0.78	2.0	1.70	85
13C--DeCB	209	55.962	0.70	2.0	2.01	101
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.298	1.07	2.0	1.96	98
13C-2,3,3',5,5'-PeCB	111	35.362	1.58	2.0	1.77	89
13C-2,2',3,3',5,5',6-HpCB	178	41.354	1.04	2.0	1.64	82
Recovery Standards						
13C-2,5-DiCB	9	15.241	1.60	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.260	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	32.561	1.57	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.935	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	52.708	0.91	2.0	NA	NA

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-64013
Filename P180817A_05

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L	EMPC pg/L	EML pg/L
1		9.755	2.65 I	--- IJ	1.95	0.683
2		12.319	2.50 I	--- IJ	0.740	0.623
3		12.535	2.72	1.56 J	---	0.968
4		---	---	ND	---	6.31
5		---	---	ND	---	2.72
6		---	---	ND	---	2.34
7		15.481	1.30 I	--- IJ	3.18	2.25
8		16.272	1.50	5.29 J	---	2.14
9		---	---	ND	---	2.45
10		---	---	ND	---	3.82
11		19.195	1.40	44.5 J	---	2.50
12	12/13	---	---	ND	---	2.47
13	12/13	---	---	ND	---	2.47
14		---	---	ND	---	2.43
15		---	---	ND	---	2.73
16		19.806	1.10	2.40 J	---	1.51
17		19.279	1.04	2.33 J	---	1.32
18	18/30	18.812	1.16	4.10 J	---	1.09
19		---	---	ND	---	1.47
20	20/28	23.315	1.08	5.22 J	---	0.886
21	21/33	23.549	1.00	3.38 J	---	0.904
22		24.002	0.94	1.87 J	---	0.902
23		---	---	ND	---	0.856
24		---	---	ND	---	0.955
25		---	---	ND	---	0.881
26	26/29	22.359	0.96	1.13 J	---	0.870
27		---	---	ND	---	0.985
28	20/28	23.315	1.08	(5.22) J	---	0.886
29	26/29	22.359	0.96	(1.13) J	---	0.870
30	18/30	18.812	1.16	(4.10) J	---	1.09
31		22.996	0.88	4.53 J	---	0.848
32		20.430	0.94	1.55 J	---	0.862
33	21/33	23.549	1.00	(3.38) J	---	0.904
34		---	---	ND	---	0.936
35		---	---	ND	---	0.891
36		---	---	ND	---	0.860
37		27.725	1.03	1.22 J	---	0.981
38		---	---	ND	---	0.884
39		---	---	ND	---	0.836
40	40/41/71	27.474	0.89	2.27 J	---	1.02
41	40/41/71	27.474	0.89	(2.27) J	---	1.02
42		---	---	ND	---	1.17
43	43/73	---	---	ND	---	0.908
44	44/47/65	26.384	0.74	5.24 J	---	0.938
45	45/51	23.465	0.84	3.46 J	---	1.05

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
ng/L = Nanograms per liter

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-64013
Filename P180817A_05

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L		EMPC pg/L	EML pg/L
46		---	---	ND		---	1.20
47	44/47/65	26.384	0.74	(5.24)	J	---	0.938
48		---	---	ND		---	1.000
49	49/69	25.797	0.83	2.37	J	---	0.908
50	50/53	---	---	ND		---	0.992
51	45/51	23.465	0.84	(3.46)	J	---	1.05
52		25.310	0.70	4.77	J	---	1.05
53	50/53	---	---	ND		---	0.992
54		---	---	ND		---	0.770
55		---	---	ND		---	0.898
56		31.504	0.89	1.72	J	---	0.917
57		---	---	ND		---	0.887
58		---	---	ND		---	0.881
59	59/62/75	---	---	ND		---	0.748
60		---	---	ND		---	0.916
61	61/70/74/76	30.431	0.77	3.65	J	---	0.888
62	59/62/75	---	---	ND		---	0.748
63		---	---	ND		---	0.880
64		27.708	0.72	1.63	J	---	0.796
65	44/47/65	26.384	0.74	(5.24)	J	---	0.938
66		30.800	0.75	1.79	J	---	0.892
67		---	---	ND		---	0.776
68		---	---	ND		---	0.883
69	49/69	25.797	0.83	(2.37)	J	---	0.908
70	61/70/74/76	30.431	0.77	(3.65)	J	---	0.888
71	40/41/71	27.474	0.89	(2.27)	J	---	1.02
72		---	---	ND		---	0.868
73	43/73	---	---	ND		---	0.908
74	61/70/74/76	30.431	0.77	(3.65)	J	---	0.888
75	59/62/75	---	---	ND		---	0.748
76	61/70/74/76	30.431	0.77	(3.65)	J	---	0.888
77		35.462	0.77	1.06	J	---	0.950
78		---	---	ND		---	0.870
79		---	---	ND		---	0.743
80		---	---	ND		---	0.785
81		---	---	ND		---	0.946
82		---	---	ND		---	0.769
83		---	---	ND		---	0.945
84		---	---	ND		---	0.798
85	85/116/117	---	---	ND		---	0.559
86	86/87/97/108/119/125	33.752	1.43	2.01	J	---	0.589
87	86/87/97/108/119/125	33.752	1.43	(2.01)	J	---	0.589
88	88/91	---	---	ND		---	0.730
89		---	---	ND		---	0.778
90	90/101/113	32.595	1.64	2.93	J	---	0.597

Conc = Concentration
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REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-64013
Filename P180817A_05

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L		EMPC pg/L	EML pg/L
91	88/91	---	---	ND		---	0.730
92		---	---	ND		---	0.730
93	93/98/100/102	---	---	ND		---	0.732
94		---	---	ND		---	0.761
95		29.525	1.49	2.30	J	---	0.688
96		---	---	ND		---	0.444
97	86/87/97/108/119/125	33.752	1.43	(2.01)	J	---	0.589
98	93/98/100/102	---	---	ND		---	0.732
99		33.198	1.42	1.28	J	---	0.544
100	93/98/100/102	---	---	ND		---	0.732
101	90/101/113	32.595	1.64	(2.93)	J	---	0.597
102	93/98/100/102	---	---	ND		---	0.732
103		---	---	ND		---	0.646
104		---	---	ND		---	0.457
105		38.989	1.22 I	---	IJ	0.804	0.689
106		---	---	ND		---	0.621
107	107/124	---	---	ND		---	0.634
108	86/87/97/108/119/125	33.752	1.43	(2.01)	J	---	0.589
109		---	---	ND		---	0.625
110	110/115	34.691	1.48	2.70	J	---	0.512
111		---	---	ND		---	0.469
112		---	---	ND		---	0.473
113	90/101/113	32.595	1.64	(2.93)	J	---	0.597
114		---	---	ND		---	0.703
115	110/115	34.691	1.48	(2.70)	J	---	0.512
116	85/116/117	---	---	ND		---	0.559
117	85/116/117	---	---	ND		---	0.559
118		37.765	1.36	1.68	J	---	0.656
119	86/87/97/108/119/125	33.752	1.43	(2.01)	J	---	0.589
120		---	---	ND		---	0.458
121		---	---	ND		---	0.511
122		---	---	ND		---	0.673
123		---	---	ND		---	0.678
124	107/124	---	---	ND		---	0.634
125	86/87/97/108/119/125	33.752	1.43	(2.01)	J	---	0.589
126		---	---	ND		---	0.723
127		---	---	ND		---	0.617
128	128/166	---	---	ND		---	0.736
129	129/138/163	40.935	0.97 I	---	IJ	1.65	0.854
130		---	---	ND		---	1.02
131		---	---	ND		---	1.12
132		---	---	ND		---	1.00
133		---	---	ND		---	0.961
134	134/143	---	---	ND		---	1.09
135	135/151	---	---	ND		---	0.688

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-64013
Filename P180817A_05

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L		EMPC pg/L	EML pg/L
136		33.098	1.14	0.544	J	---	0.507
137		---	---	ND		---	0.919
138	129/138/163	40.935	0.97 I	---	IJ	(1.65)	0.854
139	139/140	---	---	ND		---	0.857
140	139/140	---	---	ND		---	0.857
141		---	---	ND		---	0.866
142		---	---	ND		---	1.03
143	134/143	---	---	ND		---	1.09
144		---	---	ND		---	0.662
145		---	---	ND		---	0.502
146		---	---	ND		---	0.836
147	147/149	36.541	1.06	1.63	J	---	0.882
148		---	---	ND		---	0.680
149	147/149	36.541	1.06	(1.63)	J	---	0.882
150		---	---	ND		---	0.489
151	135/151	---	---	ND		---	0.688
152		---	---	ND		---	0.504
153	153/168	39.677	1.10	1.13	J	---	0.698
154		---	---	ND		---	0.561
155		---	---	ND		---	0.422
156	156/157	---	---	ND		---	0.738
157	156/157	---	---	ND		---	0.738
158		---	---	ND		---	0.581
159		---	---	ND		---	0.540
160		---	---	ND		---	0.644
161		---	---	ND		---	0.627
162		---	---	ND		---	0.530
163	129/138/163	40.935	0.97 I	---	IJ	(1.65)	0.854
164		---	---	ND		---	0.628
165		---	---	ND		---	0.691
166	128/166	---	---	ND		---	0.736
167		---	---	ND		---	0.549
168	153/168	39.677	1.10	(1.13)	J	---	0.698
169		---	---	ND		---	0.589
170		---	---	ND		---	0.793
171	171/173	---	---	ND		---	0.822
172		---	---	ND		---	0.801
173	171/173	---	---	ND		---	0.822
174		---	---	ND		---	0.737
175		---	---	ND		---	0.541
176		---	---	ND		---	0.423
177		---	---	ND		---	0.853
178		---	---	ND		---	0.598
179		---	---	ND		---	0.411
180	180/193	46.591	1.13	0.636	J	---	0.635

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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-64013
Filename P180817A_05

IUPAC	Co-elutions	RT	Ratio	Concentration pg/L	EMPC pg/L	EML pg/L
181		---	---	ND	---	0.756
182		---	---	ND	---	0.521
183	183/185	---	---	ND	---	0.750
184		---	---	ND	---	0.398
185	183/185	---	---	ND	---	0.750
186		---	---	ND	---	0.425
187		---	---	ND	---	0.506
188		---	---	ND	---	0.428
189		---	---	ND	---	0.543
190		---	---	ND	---	0.554
191		---	---	ND	---	0.575
192		---	---	ND	---	0.601
193	180/193	46.591	1.13	(0.636) J	---	0.635
194		---	---	ND	---	0.783
195		---	---	ND	---	0.902
196		---	---	ND	---	0.469
197	197/200	---	---	ND	---	0.346
198	198/199	---	---	ND	---	0.475
199	198/199	---	---	ND	---	0.475
200	197/200	---	---	ND	---	0.346
201		---	---	ND	---	0.350
202		---	---	ND	---	0.389
203		---	---	ND	---	0.423
204		---	---	ND	---	0.357
205		---	---	ND	---	0.612
206		---	---	ND	---	1.03
207		---	---	ND	---	0.787
208		---	---	ND	---	0.834
209		---	---	ND	---	0.571

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REPORT OF LABORATORY ANALYSIS

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Client Sample ID	CBLKYP
Lab Sample ID	BLANK-64013
Filename	P180817A_05

Congener Group	Concentration pg/L
Total Monochloro Biphenyls	1.56
Total Dichloro Biphenyls	49.8
Total Trichloro Biphenyls	27.7
Total Tetrachloro Biphenyls	28.0
Total Pentachloro Biphenyls	12.9
Total Hexachloro Biphenyls	3.30
Total Heptachloro Biphenyls	0.636
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
DecachloroBiphenyls	ND
Total PCBs	124

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-64014		
Filename	P180817A_13	Matrix	Water
Total Amount Extracted	1850 mL	Dilution	NA
ICAL ID	P180817A02	Extracted	08/13/2018 13:30
CCal Filename(s)	P180817A_03	Analyzed	08/17/2018 21:05
Method Blank ID	BLANK-64013	Injected By	CVS

	Native Analytes			Labeled Analytes		
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**
1	1.0	1.04	104	2.0	1.81	91
3	1.0	1.04	104	2.0	1.81	90
4	1.0	1.03	103	2.0	1.47	73
15	1.0	0.974	97	2.0	1.74	87
19	1.0	0.955	96	2.0	1.55	78
37	1.0	0.965	96	2.0	1.93	96
54	1.0	0.940	94	2.0	1.73	87
81	1.0	0.972	97	2.0	1.97	99
77	1.0	0.978	98	2.0	1.96	98
104	1.0	1.02	102	2.0	1.57	79
105	1.0	0.989	99	2.0	1.88	94
114	1.0	0.997	100	2.0	1.85	93
118	1.0	0.981	98	2.0	1.88	94
123	1.0	0.987	99	2.0	1.84	92
126	1.0	0.968	97	2.0	2.08	104
155	1.0	1.01	101	2.0	1.52	76
156/157	2.0	1.96	98	4.0	3.42	85
167	1.0	0.970	97	2.0	1.67	84
169	1.0	0.968	97	2.0	1.96	98
188	1.0	0.986	99	2.0	1.61	81
189	1.0	0.957	96	2.0	2.23	111
202	1.0	0.978	98	2.0	1.61	81
205	1.0	0.967	97	2.0	1.84	92
206	1.0	0.977	98	2.0	1.77	88
208	1.0	0.962	96	2.0	1.63	81
209	1.0	0.948	95	2.0	1.89	95

R = Recovery outside of method 1668A control limits
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REPORT OF LABORATORY ANALYSIS

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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-64015		
Filename	P180817A_14	Matrix	Water
Total Amount Extracted	1800 mL	Dilution	NA
ICAL ID	P180817A02	Extracted	08/13/2018 13:30
CCal Filename(s)	P180817A_03	Analyzed	08/17/2018 22:04
Method Blank ID	BLANK-64013	Injected By	CVS

	Native Analytes			Labeled Analytes		
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**
1	1.0	1.06	106	2.0	1.75	87
3	1.0	1.07	107	2.0	1.76	88
4	1.0	1.04	104	2.0	1.42	71
15	1.0	0.993	99	2.0	1.72	86
19	1.0	0.942	94	2.0	1.50	75
37	1.0	0.970	97	2.0	1.92	96
54	1.0	0.947	95	2.0	1.69	85
81	1.0	0.999	100	2.0	1.94	97
77	1.0	0.999	100	2.0	1.95	98
104	1.0	1.01	101	2.0	1.56	78
105	1.0	0.985	99	2.0	1.88	94
114	1.0	0.991	99	2.0	1.83	92
118	1.0	1.00	100	2.0	1.88	94
123	1.0	0.999	100	2.0	1.83	92
126	1.0	0.979	98	2.0	2.07	103
155	1.0	1.00	100	2.0	1.54	77
156/157	2.0	1.97	98	4.0	3.49	87
167	1.0	0.991	99	2.0	1.70	85
169	1.0	0.971	97	2.0	2.08	104
188	1.0	0.992	99	2.0	1.56	78
189	1.0	1.13	113	2.0	1.62	81
202	1.0	1.00	100	2.0	1.54	77
205	1.0	0.972	97	2.0	1.89	95
206	1.0	1.01	101	2.0	1.75	88
208	1.0	0.987	99	2.0	1.63	82
209	1.0	0.972	97	2.0	1.89	94

R = Recovery outside of method 1668A control limits
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Method 1668A

Spike Recovery Relative Percent Difference (RPD) Results

Client	Asset Laboratories		
Spike 1 ID	LCS-64014	Spike 2 ID	LCSD-64015
Spike 1 Filename	P180817A_13	Spike 2 Filename	P180817A_14

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	104	106	1.9
4-MoCB	3	104	107	2.8
2,2'-DiCB	4	103	104	1.0
4,4'-DiCB	15	97	99	2.0
2,2',6-TrCB	19	96	94	2.1
3,4,4'-TrCB	37	96	97	1.0
2,2',6,6'-TeCB	54	94	95	1.1
3,3',4,4'-TeCB	77	98	100	2.0
3,4,4',5-TeCB	81	97	100	3.0
2,2',4,6,6'-PeCB	104	102	101	1.0
2,3,3',4,4'-PeCB	105	99	99	0.0
2,3,4,4',5-PeCB	114	100	99	1.0
2,3',4,4',5-PeCB	118	98	100	2.0
2,3',4,4',5'-PeCB	123	99	100	1.0
3,3',4,4',5-PeCB	126	97	98	1.0
2,2',4,4',6,6'-HxCB	155	101	100	1.0
(156/157)	156/157	98	98	0.0
2,3',4,4',5,5'-HxCB	167	97	99	2.0
3,3',4,4',5,5'-HxCB	169	97	97	0.0
2,2',3,4',5,6,6'-HpCB	188	99	99	0.0
2,3,3',4,4',5,5'-HpCB	189	96	113	16.3
2,2',3,3',5,5',6,6'-OcCB	202	98	100	2.0
2,3,3',4,4',5,5',6-OcCB	205	97	97	0.0
2,2',3,3',4,4',5,5',6-NoCB	206	98	101	3.0
2,2',3,3',4,5,5',6,6'-NoCB	208	96	99	3.1
Decachlorobiphenyl	209	95	97	2.1

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

December 10, 2018

Eric Davis
CH2MHill
1000 Wilshire Blvd.
Los Angeles, CA 90017

TEL:
FAX:

Workorder No.: N033183

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on November 30, 2018 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Quennie Manimtim
Laboratory Director

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N033183

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Subcontracted Analyses:

Total PCB was subcontracted to Pace Analytical Services, Inc., Minneapolis, MN.

EPA 8081 was subcontracted to Test America, Irvine, CA.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Lead was reported below PQL with dilution. Dilution was necessary due to associated internal standard not meeting method criteria possibly due to matrix interference.

Analytical Comments for EPA 8270C_SIM:

Matrix Spike (MS) is outside recovery criteria for some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Matrix Spike (MS)/Matrix Spike Duplicate (MSD) is outside criteria for several analytes possibly due to non-homogeneity of sample; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

ASSET Laboratories

Date: *10-Dec-18*

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N033183
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N033183-001A	HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	11/30/2018	12/10/2018
N033183-001B	HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	11/30/2018	12/10/2018
N033183-001C	HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	11/30/2018	12/10/2018
N033183-001D	HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	11/30/2018	12/10/2018
N033183-001E	HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	11/30/2018	12/10/2018

CLIENT: CH2MHill
Lab Order: N033183
Project: SFPP Norwalk
Lab ID: N033183-001

Client Sample ID: HTTMDL-11-30
Collection Date: 11/30/2018 8:25:00 AM
Matrix: WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_181204I** QC Batch: **71595**				PrepDate:	**12/4/2018**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	38	10	10		mg/L	1	12/4/2018 08:18 AM
SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM							
			EPA 3510C		**EPA 8270CSIM**		
RunID: **NV00922-MS9_181203B** QC Batch: **71565**				PrepDate:	**11/30/2018**		Analyst: **RRS**
1-Methylnaphthalene	ND	0.040	0.20		ug/L	1	12/4/2018 05:58 AM
2-Methylnaphthalene	ND	0.058	0.20		ug/L	1	12/4/2018 05:58 AM
Acenaphthene	ND	0.048	0.20		ug/L	1	12/4/2018 05:58 AM
Acenaphthylene	ND	0.049	0.20		ug/L	1	12/4/2018 05:58 AM
Anthracene	ND	0.043	0.20		ug/L	1	12/4/2018 05:58 AM
Benzo(a)anthracene	ND	0.036	0.20		ug/L	1	12/4/2018 05:58 AM
Benzo(a)pyrene	ND	0.043	0.20		ug/L	1	12/4/2018 05:58 AM
Benzo(b)fluoranthene	ND	0.043	0.20		ug/L	1	12/4/2018 05:58 AM
Benzo(g,h,i)perylene	ND	0.066	0.20		ug/L	1	12/4/2018 05:58 AM
Benzo(k)fluoranthene	ND	0.055	0.20		ug/L	1	12/4/2018 05:58 AM
Chrysene	ND	0.043	0.20		ug/L	1	12/4/2018 05:58 AM
Dibenz(a,h)anthracene	ND	0.058	0.20		ug/L	1	12/4/2018 05:58 AM
Fluoranthene	ND	0.034	0.20		ug/L	1	12/4/2018 05:58 AM
Fluorene	ND	0.045	0.20		ug/L	1	12/4/2018 05:58 AM
Indeno(1,2,3-cd)pyrene	ND	0.059	0.20		ug/L	1	12/4/2018 05:58 AM
Naphthalene	ND	0.052	0.20		ug/L	1	12/4/2018 05:58 AM
Phenanthrene	ND	0.048	0.20		ug/L	1	12/4/2018 05:58 AM
Pyrene	ND	0.034	0.20		ug/L	1	12/4/2018 05:58 AM
Surr: 1,2-Dichlorobenzene-d4	51.0	0	27-100		%REC	1	12/4/2018 05:58 AM
Surr: 2-Fluorobiphenyl	59.0	0	34-135		%REC	1	12/4/2018 05:58 AM
Surr: 4-Terphenyl-d14	80.0	0	34-167		%REC	1	12/4/2018 05:58 AM
Surr: Nitrobenzene-d5	69.0	0	25-135		%REC	1	12/4/2018 05:58 AM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_181204B** QC Batch: **71594**				PrepDate:	**12/4/2018**		Analyst: **CEI**
Copper	ND	0.26	0.50		µg/L	1	12/4/2018 04:47 PM
Lead	1.3	0.64	2.5	J	µg/L	5	12/7/2018 12:05 PM
Zinc	22	0.27	1.0		µg/L	1	12/4/2018 04:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: CH2MHill
Work Order: N033183
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-71595**	SampType: **LCS**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **12/4/2018**	RunNo: **130328**
Client ID: **LCSW**	Batch ID: **71595**	TestNo: **SM2540D**		Analysis Date: **12/4/2018**	SeqNo: **3219462**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	944.000	10	1000	0	94.4	80	120				

Sample ID: **MB-71595**	SampType: **MBLK**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **12/4/2018**	RunNo: **130328**
Client ID: **PBW**	Batch ID: **71595**	TestNo: **SM2540D**		Analysis Date: **12/4/2018**	SeqNo: **3219463**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N033156-001ADUP**	SampType: **DUP**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **12/4/2018**	RunNo: **130328**
Client ID: **ZZZZZZ**	Batch ID: **71595**	TestNo: **SM2540D**		Analysis Date: **12/4/2018**	SeqNo: **3219465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033183
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_SFPP

Sample ID: **MB-71594** SampType: **MBLK** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130343**
Client ID: **PBW** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/4/2018** SeqNo: **3219832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.50									
Zinc	ND	1.0									

Sample ID: **LCS-71594** SampType: **LCS** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130343**
Client ID: **LCSW** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/4/2018** SeqNo: **3219833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	10.251	0.50	10.00	0	103	85	115				
Zinc	9.878	1.0	10.00	0	98.8	85	115				

Sample ID: **N033183-001B-DUP** SampType: **DUP** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130343**
Client ID: **ZZZZZZ** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/4/2018** SeqNo: **3219835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.50						0	0	20	
Zinc	22.372	1.0						21.60	3.49	20	

Sample ID: **N033183-001B-MS** SampType: **MS** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130343**
Client ID: **ZZZZZZ** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/4/2018** SeqNo: **3219838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	1.196	0.50	10.00	0	12.0	75	125				S
Zinc	31.245	1.0	10.00	21.60	96.4	75	125				

Sample ID: **N033183-001B-MSD** SampType: **MSD** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130343**
Client ID: **ZZZZZZ** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/4/2018** SeqNo: **3219839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	1.253	0.50	10.00	0	12.5	75	125	1.196	4.63	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033183
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_SFPP

Sample ID: **N033183-001B-MSD** SampType: **MSD** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130343**
Client ID: **ZZZZZZ** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/4/2018** SeqNo: **3219839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	29.950	1.0	10.00	21.60	83.5	75	125	31.24	4.23	20	

Sample ID: **MB-71594** SampType: **MBLK** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130390**
Client ID: **PBW** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/7/2018** SeqNo: **3222679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.50									

Sample ID: **LCS-71594** SampType: **LCS** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130390**
Client ID: **LCSW** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/7/2018** SeqNo: **3222680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	9.646	0.50	10.00	0	96.5	85	115				

Sample ID: **N033183-001B-DUP** SampType: **DUP** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130390**
Client ID: **ZZZZZZ** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/7/2018** SeqNo: **3222689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.352	2.5						1.289	0	20	J

Sample ID: **N033183-001B-MS** SampType: **MS** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130390**
Client ID: **ZZZZZZ** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/7/2018** SeqNo: **3222691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	12.043	2.5	10.00	1.289	108	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033183
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_SFPP

Sample ID: **N033183-001B-MSD** SampType: **MSD** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **12/4/2018** RunNo: **130390**
Client ID: **ZZZZZZ** Batch ID: **71594** TestNo: **EPA 200.8** Analysis Date: **12/7/2018** SeqNo: **3222692**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	12.163	2.5	10.00	1.289	109	75	125	12.04	0.991	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033183
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **LCS-71565** SampType: **LCS** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **11/30/2018** RunNo: **130273**
Client ID: **LCSW** Batch ID: **71565** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **12/3/2018** SeqNo: **3217445**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	0.660	0.20	1.000	0	66.0	36	121				
1-Methylnaphthalene	0.670	0.20	1.000	0	67.0	35	131				
Acenaphthene	0.760	0.20	1.000	0	76.0	39	125				
Acenaphthylene	0.920	0.20	1.000	0	92.0	43	140				
Anthracene	0.920	0.20	1.000	0	92.0	41	132				
Benzo(a)anthracene	1.120	0.20	1.000	0	112	58	141				
Benzo(a)pyrene	0.870	0.20	1.000	0	87.0	31	142				
Benzo(b)fluoranthene	0.830	0.20	1.000	0	83.0	42	156				
Benzo(g,h,i)perylene	0.720	0.20	1.000	0	72.0	12	171				
Benzo(k)fluoranthene	0.770	0.20	1.000	0	77.0	49	165				
Chrysene	0.840	0.20	1.000	0	84.0	51	155				
Dibenz(a,h)anthracene	0.780	0.20	1.000	0	78.0	28	153				
Fluoranthene	0.980	0.20	1.000	0	98.0	47	158				
Fluorene	0.830	0.20	1.000	0	83.0	40	140				
Indeno(1,2,3-cd)pyrene	0.820	0.20	1.000	0	82.0	20	167				
Naphthalene	0.670	0.20	1.000	0	67.0	39	125				
Phenanthrene	0.810	0.20	1.000	0	81.0	46	144				
Pyrene	0.960	0.20	1.000	0	96.0	39	158				
Surr: 1,2-Dichlorobenzene-d4	0.560		1.000		56.0	27	100				
Surr: 2-Fluorobiphenyl	0.670		1.000		67.0	34	135				
Surr: 4-Terphenyl-d14	0.820		1.000		82.0	34	167				
Surr: Nitrobenzene-d5	0.880		1.000		88.0	25	135				

Sample ID: **MB-71565** SampType: **MBLK** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **11/30/2018** RunNo: **130273**
Client ID: **PBW** Batch ID: **71565** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **12/3/2018** SeqNo: **3217446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	0.20									
1-Methylnaphthalene	ND	0.20									
Acenaphthene	ND	0.20									

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033183
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **MB-71565** SampType: **MBLK** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **11/30/2018** RunNo: **130273**
Client ID: **PBW** Batch ID: **71565** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **12/3/2018** SeqNo: **3217446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene	ND	0.20									
Anthracene	ND	0.20									
Benzo(a)anthracene	ND	0.20									
Benzo(a)pyrene	ND	0.20									
Benzo(b)fluoranthene	ND	0.20									
Benzo(g,h,i)perylene	ND	0.20									
Benzo(k)fluoranthene	ND	0.20									
Chrysene	ND	0.20									
Dibenz(a,h)anthracene	ND	0.20									
Fluoranthene	ND	0.20									
Fluorene	ND	0.20									
Indeno(1,2,3-cd)pyrene	ND	0.20									
Naphthalene	ND	0.20									
Phenanthrene	ND	0.20									
Pyrene	ND	0.20									
Surr: 1,2-Dichlorobenzene-d4	0.580		1.000		58.0	27	100				
Surr: 2-Fluorobiphenyl	0.690		1.000		69.0	34	135				
Surr: 4-Terphenyl-d14	0.820		1.000		82.0	34	167				
Surr: Nitrobenzene-d5	0.840		1.000		84.0	25	135				

Sample ID: **N033110-001BMS** SampType: **MS** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **11/30/2018** RunNo: **130273**
Client ID: **ZZZZZZ** Batch ID: **71565** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **12/4/2018** SeqNo: **3217457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	1.196	0.21	4.124	0	29.0	36	121				S
1-Methylnaphthalene	1.155	0.21	4.124	0	28.0	35	131				S
Acenaphthene	1.361	0.21	4.124	0	33.0	39	125				S
Acenaphthylene	1.670	0.21	4.124	0	40.5	43	140				S
Anthracene	1.773	0.21	4.124	0	43.0	41	132				
Benzo(a)anthracene	2.330	0.21	4.124	0	56.5	58	141				S

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033183
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **N033110-001BMS** SampType: **MS** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **11/30/2018** RunNo: **130273**
Client ID: **ZZZZZZ** Batch ID: **71565** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **12/4/2018** SeqNo: **3217457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	1.825	0.21	4.124	0	44.3	31	142				
Benzo(b)fluoranthene	1.825	0.21	4.124	0	44.3	42	156				
Benzo(g,h,i)perylene	1.464	0.21	4.124	0	35.5	12	171				
Benzo(k)fluoranthene	1.515	0.21	4.124	0	36.8	49	165				S
Chrysene	1.742	0.21	4.124	0	42.3	51	155				S
Dibenz(a,h)anthracene	1.629	0.21	4.124	0	39.5	28	153				
Fluoranthene	1.969	0.21	4.124	0	47.8	47	158				
Fluorene	1.485	0.21	4.124	0	36.0	40	140				S
Indeno(1,2,3-cd)pyrene	1.670	0.21	4.124	0	40.5	20	167				
Naphthalene	1.196	0.21	4.124	0	29.0	39	125				S
Phenanthrene	1.515	0.21	4.124	0	36.8	46	144				S
Pyrene	1.969	0.21	4.124	0	47.8	39	158				
Surr: 1,2-Dichlorobenzene-d4	0.289		1.031		28.0	27	100				
Surr: 2-Fluorobiphenyl	0.320		1.031		31.0	34	135				S
Surr: 4-Terphenyl-d14	0.443		1.031		43.0	34	167				
Surr: Nitrobenzene-d5	0.392		1.031		38.0	25	135				

Sample ID: **N033110-001BMSD** SampType: **MSD** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **11/30/2018** RunNo: **130273**
Client ID: **ZZZZZZ** Batch ID: **71565** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **12/4/2018** SeqNo: **3217458**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	2.714	0.20	4.082	0	66.5	36	121	1.196	77.7	30	R
1-Methylnaphthalene	2.633	0.20	4.082	0	64.5	35	131	1.155	78.1	30	R
Acenaphthene	3.041	0.20	4.082	0	74.5	39	125	1.361	76.3	30	R
Acenaphthylene	3.694	0.20	4.082	0	90.5	43	140	1.670	75.5	30	R
Anthracene	3.684	0.20	4.082	0	90.3	41	132	1.773	70.0	30	R
Benzo(a)anthracene	4.388	0.20	4.082	0	108	58	141	2.330	61.3	30	R
Benzo(a)pyrene	3.337	0.20	4.082	0	81.8	31	142	1.825	58.6	30	R
Benzo(b)fluoranthene	3.153	0.20	4.082	0	77.3	42	156	1.825	53.4	30	R
Benzo(g,h,i)perylene	2.622	0.20	4.082	0	64.2	12	171	1.464	56.7	30	R

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033183
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **N033110-001BMSD** SampType: **MSD** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **11/30/2018** RunNo: **130273**
Client ID: **ZZZZZZ** Batch ID: **71565** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **12/4/2018** SeqNo: **3217458**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	2.908	0.20	4.082	0	71.2	49	165	1.515	63.0	30	R
Chrysene	3.286	0.20	4.082	0	80.5	51	155	1.742	61.4	30	R
Dibenz(a,h)anthracene	2.908	0.20	4.082	0	71.2	28	153	1.629	56.4	30	R
Fluoranthene	3.796	0.20	4.082	0	93.0	47	158	1.969	63.4	30	R
Fluorene	3.337	0.20	4.082	0	81.8	40	140	1.485	76.8	30	R
Indeno(1,2,3-cd)pyrene	3.031	0.20	4.082	0	74.3	20	167	1.670	57.9	30	R
Naphthalene	2.633	0.20	4.082	0	64.5	39	125	1.196	75.1	30	R
Phenanthrene	3.112	0.20	4.082	0	76.2	46	144	1.515	69.0	30	R
Pyrene	3.786	0.20	4.082	0	92.8	39	158	1.969	63.1	30	R
Surr: 1,2-Dichlorobenzene-d4	0.633		1.020		62.0	27	100		0		
Surr: 2-Fluorobiphenyl	0.735		1.020		72.0	34	135		0		
Surr: 4-Terphenyl-d14	0.867		1.020		85.0	34	167		0		
Surr: Nitrobenzene-d5	0.898		1.020		88.0	25	135		0		

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

Asset Laboratories
3151 W. Post Road
Las Vegas, NV 89118
Tel: 702-307-2659 Fax: 702-307-2691
Marlon Cartin (marlon@assetlaboratories.com)

CHAIN OF CUSTODY RECORD

DATE: NOV. 30, 2018
PAGE: 1 of 1

Section A Required Client Information:

Company:	Kinder Morgan Energy Partners Attention: Steve Defibaugh
Address:	1100 Town & Country Road Orange, CA 92868
Email To:	steve_defibaugh@kindermorgan.com eric.davis@ch2m.com
Phone: 714-560-4802	Fax: 714-560-4801

Section B Required Project Information:

Report To:	Eric Davis
Copy To:	Steve Defibaugh
Purchase Order No.:	
Project Name:	SFPP Norwalk

Section C Invoice Information:

Attention:	Steve Defibaugh - Ref. AFE# 81195
Company Name:	Kinder Morgan Energy Partners
Address:	1100 Town & Country Road Orange, CA 92868
ATL Project Manager:	Marlon Cartin

Section D Sampler Information:

Sampler Name:	Nils Orliczky
Sampler Signature:	[signature]
Sample Date:	11-30-18

Section E Required Sample Information

					CONTAINER TYPE			P	P	A	A	A		
					# OF CONTAINERS			1	1	2	2	2		
					PRESERVATIVE			--	N	--	--	--		
					VOLUME (mL)			1000	500	1000	1000	1000		
ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLING DATE	SAMPLING TIME	TOTAL # OF CONTAINERS	Analysis Test	Total Suspended Solids (SM2540D)	Metals (EPA 200.8 Cu, Pb, Zn)	Pesticides (SW8081A, 2,4-DDT, 4,4-DDT)	PAHs (SW8270A-SIM)	Total PCBs (EPA 1668A)	Comments
1	HTTMDL-11-30	Mouth of San Gabriel River	WW	G	11/30/18	0855	8		X	X	X	X	X	N033183-01
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

(Rows 2–12 struck through; 11-30-18 [signature])

Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time
[signature]	11-30-18 / 1103	[signature] HAMAH GLODOVIZA 4.8°C	11/30/18 1405
[signature]	11/30/18 1725	FEN MF	12/1/18 9:30

Turn Around Time (TAT):
- ☐ A = Same Day
- ☐ B = 24 Hours
- ☐ C = 48 Hours
- ☐ D = 72 Hours
- ☒ E = 5 Workdays
- ☐ E = 10 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

IR #2 1.6°C 450 0908

Matrix:		
W = Water	WW = Wastewater	
O = Oil	P = Product	S = Soil
Others/Specify:		

Preservatives:		
H = HCl	N = HNO3	S = H2SO4
Z = Zn(AC)2	O = NaOH	T = Na2S2O3
Others/Specify:		

Container Type:			
T = Tube	V = VOA	P = Pint	A = Amber
J = Jar	B = Tedlar	G = Glass	
M = Metal	P = Plastic	C = Can	

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/30/2018	Workorder:	N033183
Rep sample Temp (Deg C):	1.6	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: Golden State Overnight

Last 4 digits of Tracking No.: 0908 Packing Material Used: Bubble Wrap

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: FR 12/4/2018

Reviewed By: 12/6/18

Subject: Re: N033183 EDD Revised report.
From: "Chuck Sueper" <Chuck.Sueper@pacelabs.com>
Date: 1/31/2019, 12:41 PM
To: <fernando@assetlaboratories.com>, "marlon@assetlaboratories.com" <marlon@assetlaboratories.com>, "JoAnne Richardson" <JoAnne.Richardson@pacelabs.com>
CC: "marycel@assetlaboratories.com" <marycel@assetlaboratories.com>

Hello Fernando,

Yes, in cases where the EDL did not support the reporting limit, the EDL was used as the reporting limit. In those cases the result was flagged "A".

Chuck

>>> Fernando Rivera <fernando@assetlaboratories.com> 1/31/2019 1:50 PM >>>
>
Hi!, Joanne
Unfortunately, the EDD did not pass our checker.
The problem still persists, in some of the values the EDL is greater than the RL. Is EML equal to the EDL?
Thanks,

Fern Rivera
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

ASSET LABORATORIES - Serving Clients with Passion and Professionalism

On 01/30/19 9:45 AM, JoAnne Richardson wrote:

> Good morning Marlon,
>
> My apologies in the late response. The lab has reviewed the data. The report has been revised to correct a discrepancy between the pdf report and the electronic deliverable. If there is anything further that you need please feel free to contact me.
>
> Thank you,

Your business is greatly appreciated

Joanne Richardson
Project Manager
Pace Analytical Services LLC
1700 Elm St SE, Suite 200
Minneapolis MN 55414
Direct 612 607-6453| Main 612 607-1700
joanne.richardson@pacelabs.com
www.pacelabs.com

>>> "Marlon B. Cartin" <marlon@assetlaboratories.com> 1/18/2019 10:52 AM >>>
Hi Joanne,
I understand there's an issue on the EDD you provided us for the above project and were requesting for a revision. Do you have an update for the status?
Thanks,
Marlon Cartin
Project Manager
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 **I P:** 562.219.7435 **I F:** 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 **I P:** 702.307.2659 Ext. 410 **I F:** 702.307.2691 **I M:** 702.439.0421
www.assetlaboratories.com
cid:258F4428-EE0A-4BD3-A608-4F9F6CCF624F

ASSET Laboratories

WORK ORDER Summary

03-Dec-18

WorkOrder: N033183

Client ID: CH2HI03

Project: SFPP Norwalk **QC Level:** RTNE **Date Received:** 11/30/2018

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N033183-001A	HTTMDL-11-30	11/30/2018 8:25:00 AM	12/7/2018	Wastewater	SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			12/7/2018			Total Suspended Solids Prep	☐	☐	☐	WW
N033183-001B			12/7/2018			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			12/7/2018		EPA 200.8	TOTAL METALS BY ICPMS	☐	☐	☐	WW
N033183-001C			12/7/2018		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: PESTICIDE/PCB	☐	☐	☐	WW
			12/7/2018		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: PESTICIDE	☐	☐	☐	WW
			12/7/2018		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: 8270C - SIM	☐	☐	☐	WW
			12/7/2018		EPA 8081A	ORGANOCHLORINE PESTICIDES BY GC/ECD	☐	☐	☐	WW
			12/7/2018		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WW
			12/7/2018		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WW
N033183-002A	FOLDER	12/7/2018	12/7/2018		Folder	Folder	☐	☐	☐	LAB
			12/7/2018		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414

TEL: (612) 607-1700
FAX: (612) 607-6444
Acct #:

Field Sampler: Nils Orliczky

04-Dec-18

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**1668c**		
N033183-001E / HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	32OZA	1		

EDD Requirement CH2MHILL Labspec 7 edata. Please report "J" flagged down to MDL format.

Please CC Report to Lucille Glosinda at lucille.golosinda@assetlaboratories.com

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N33183A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyzed for Total PCBs by 1668 at 250 pg/L. California sample

Fedex #: 773879368586

		Date/Time		**Date/Time**
Relinquished by:		12/4/2018 16:00	**Received by:**	
Relinquished by:			**Received by:**	

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:

Test America - Irvine
17461 Derian Ave, Ste. 100
Irvine, CA 92614

TEL: (949) 261-1022
FAX: (949) 261-1228
Acct #:

Field Sampler: Nils Orliczky

04-Dec-18

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**EPA 8081A**		
N033183-001D / HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	32OZA	1		

EDD Requirement CH2MHILL Labspec 7 edata. Please report "J" flagged down to MDL format.

Please CC Report to Lucille Glosinda at lucille.golosinda@assetlaboratories.com

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N33183B Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for 2,4-DDT (RL=0.1 ppb) and 4,4-DDT (RL=0.05 ppb) by EPA 8081.

GSO #: 542988073

		Date/Time		Date/Time
Relinquished by:		12/4/2018 17:00	**Received by:**	
Relinquished by:			**Received by:**	

GSO | a GLS company GLS

800-322-5555
www.gso.com

Ship From
ASSET LABORATORIES
MOLKY BRAR
11110 ARTESIA BLVD..SUITE B
CERRITOS, CA 90703

Ship To
ASSET LABORATORIES
MARLON CARTIN
3151 W. POST RD.,
LAS VEGAS, NV 89118

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:
HOLD FOR PICK-UP
Signature Type: STANDARD

Tracking #: 542960908

SDS

LVS A

LAS VEGAS

C89102A

94586471

Package 4 of 5

Print Date: 11/30/2018 6:22 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

1/L 17 2 1.6°C

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-226410-1
Client Project/Site: N033183-001D

For:
Advanced Technology Laboratories
dba Asset Laboratories
3151-3153 W Post Road
Las Vegas, Nevada 89118

Attn: Lucille Golosinda

Authorized for release by:
12/17/2018 2:48:39 PM

Danielle Roberts, Senior Project Manager
(949)261-1022
danielle.roberts@testamericainc.com

Table of Contents

Sample Summary

Client: Advanced Technology Laboratories
Project/Site: N033183-001D

TestAmerica Job ID: 440-226410-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-226410-1	N033183-001D/HTTMDL-11-30	Water	11/30/18 08:25	12/05/18 11:15

Job ID: 440-226410-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-226410-1

Comments
No additional comments.

Receipt
The sample was received on 12/5/2018 11:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2º C.

GC Semi VOA
Method(s) 8081A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-515321 and analytical batch 440-515428. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-515321/2-A)

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

Organic Prep
Method(s) 3510C, 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 3510-8015 preparation batch 440-515321.

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

Detection Summary

Client: Advanced Technology Laboratories
Project/Site: N033183-001D

TestAmerica Job ID: 440-226410-1

Client Sample ID: N033183-001D/HTTMDL-11-30 **Lab Sample ID: 440-226410-1**

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Advanced Technology Laboratories
Project/Site: N033183-001D

TestAmerica Job ID: 440-226410-1

Client Sample ID: N033183-001D/HTTMDL-11-30
Date Collected: 11/30/18 08:25
Date Received: 12/05/18 11:15

Lab Sample ID: 440-226410-1
Matrix: Water

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDT	ND		0.11	0.021	ug/L		12/06/18 09:14	12/06/18 16:37	1
4,4'-DDT	ND		0.011	0.0043	ug/L		12/06/18 09:14	12/06/18 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*70*		*28 - 108*	*12/06/18 09:14*	*12/06/18 16:37*	*1*
Tetrachloro-m-xylene	*54*		*10 - 123*	*12/06/18 09:14*	*12/06/18 16:37*	*1*

Surrogate Summary

Client: Advanced Technology Laboratories
Project/Site: N033183-001D

TestAmerica Job ID: 440-226410-1

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	DCB2 (28-108)	TCX2 (10-123)								
440-226410-1	N033183-001D/HTTMDL-11-30	70	54								
LCS 440-515321/2-A	Lab Control Sample	73	45								
LCSD 440-515321/3-A	Lab Control Sample Dup	75	47								
MB 440-515321/1-A	Method Blank	79	53								

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Method Summary

Client: Advanced Technology Laboratories
Project/Site: N033183-001D

TestAmerica Job ID: 440-226410-1

Method	Method Description	Protocol	Laboratory
8081A	Organochlorine Pesticides (GC)	SW846	TAL IRV
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL IRV

Protocol References:

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

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Advanced Technology Laboratories
Project/Site: N033183-001D

TestAmerica Job ID: 440-226410-1

Client Sample ID: N033183-001D/HTTMDL-11-30
Date Collected: 11/30/18 08:25
Date Received: 12/05/18 11:15

Lab Sample ID: 440-226410-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			935 mL	2 mL	515321	12/06/18 09:14	L1H	TAL IRV
Total/NA	Analysis	8081A		1			515428	12/06/18 16:37	D1D	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 440-515321/1-A
Matrix: Water
Analysis Batch: 515428

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 515321

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDT	ND		0.10	0.020	ug/L		12/06/18 09:14	12/06/18 13:36	1
4,4'-DDT	ND		0.010	0.0040	ug/L		12/06/18 09:14	12/06/18 13:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*79*		*28 - 108*	*12/06/18 09:14*	*12/06/18 13:36*	*1*
Tetrachloro-m-xylene	*53*		*10 - 123*	*12/06/18 09:14*	*12/06/18 13:36*	*1*

Lab Sample ID: LCS 440-515321/2-A
Matrix: Water
Analysis Batch: 515428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 515321

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4'-DDT			0.250	0.196		ug/L		78	10 - 150		
4,4'-DDT			0.250	0.207		ug/L		83	41 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*73*		*28 - 108*
Tetrachloro-m-xylene	*45*		*10 - 123*

Lab Sample ID: LCSD 440-515321/3-A
Matrix: Water
Analysis Batch: 515428

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 515321

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4'-DDT			0.250	0.201		ug/L		80	10 - 150	3	35
4,4'-DDT			0.250	0.212		ug/L		85	41 - 140	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*75*		*28 - 108*
Tetrachloro-m-xylene	*47*		*10 - 123*

QC Association Summary

Client: Advanced Technology Laboratories
Project/Site: N033183-001D

TestAmerica Job ID: 440-226410-1

GC Semi VOA

Prep Batch: 515321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-226410-1	N033183-001D/HTTMDL-11-30	Total/NA	Water	3510C	
MB 440-515321/1-A	Method Blank	Total/NA	Water	3510C	
LCS 440-515321/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 440-515321/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 515428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-226410-1	N033183-001D/HTTMDL-11-30	Total/NA	Water	8081A	515321
MB 440-515321/1-A	Method Blank	Total/NA	Water	8081A	515321
LCS 440-515321/2-A	Lab Control Sample	Total/NA	Water	8081A	515321
LCSD 440-515321/3-A	Lab Control Sample Dup	Total/NA	Water	8081A	515321

Glossary

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

Accreditation/Certification Summary

Client: Advanced Technology Laboratories
Project/Site: N033183-001D

TestAmerica Job ID: 440-226410-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	LA Cty Sanitation Districts	9	10256	06-30-19

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

Analysis Method	Prep Method	Matrix	Analyte
8081A	3510C	Water	2,4'-DDT
8081A	3510C	Water	4,4'-DDT

California	State Program	9	CA ELAP 2706	06-30-19

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

Analysis Method	Prep Method	Matrix	Analyte
8081A	3510C	Water	2,4'-DDT

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www atl-labs com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:
Test America - Irvine
17461 Derian Ave, Ste. 100
Irvine, CA 92614

TEL: (949) 261-1022
FAX: (949) 261-1228
Acct #:

Field Sampler: Nils Orliczky

04-Dec-18

AS 12/5/18

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**EPA 8081A**		
N033183-001D / HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	32OZA	1		

440-226410 Chain of Custody

EDD Requirement CH2MHILL Labspec 7 edata. Please report "J" flagged down to MDL format.

Please CC Report to Lucille Glosinda at lucille.golosinda@assetlaboratories.com

General Comments. Please email sample receipt acknowledgement to the PM.

Please use PO#:N33183B Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com For questions, call Marlon at (702)-307-2659 Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analyze for 2,4-DDT (RL=0.1 ppb) and 4,4-DDT (RL=0.05 ppb) by EPA 8081.

GSO #: 542988073

	Date/Time		Date/Time
Relinquished by:	12/4/2018 17:00	**Received by:**	12/5/18 1115
Relinquished by:		**Received by:**	

GSO #542988073

1-2/1-2/1889

Login Sample Receipt Checklist

Client: Advanced Technology Laboratories

Job Number: 440-226410-1

Login Number: 226410
List Number: 1
Creator: Skinner, Alma D

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Marlon Cartin
Asset Laboratories
3151 West Post Road
Las Vegas NV 89118

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10457600
Sample Receipt Date: 12/05/2018
Client Project #: N033183
Client Sub PO #: N/A
State Cert #: 2929

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Joanne Richardson, your Pace Project Manager.

This report has been reviewed by:

Joanne Richardson

January 30, 2019

Joanne Richardson,
(612) 607-6453
(612) 607-6444 (fax)

Report Prepared Date:
January 28, 2019

Report of Laboratory Analysis

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on one sample submitted by a representative of Asset Laboratories. The sample was analyzed for the presence or absence of polychlorobiphenyls (PCBs) using a modified version of USEPA Method 1668A. Reporting limits were set to 25-75 ng/kg and adjusted for the amount of sample extracted. This report was revised to correct a discrepancy between the pdf report and the electronic deliverable.

The dilution level noted on the data tables is being adjusted to allow the correct data flags to populate the electronic deliverables as well as the data tables. Samples and MDL extracts were analyzed at elevated volumes. That volume is being treated as a 1x dilution for calculation purposes, with larger dilutions being factored from that volume. The standard reporting limits were not adjusted since the limits remained within the calibration range even after dilutions were applied.

The recoveries of the isotopically-labeled PCB internal standards in the sample extract ranged from 14-86%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1668C. Since the quantification of the native congeners was based on isotope dilution and internal standard methodology, the data were automatically corrected for variation in recovery and accurate values were obtained. Several reporting limits were slightly elevated and were flagged "A" as reported based on signal to noise responses. Incorrect isotope ratios were obtained for selected PCB congeners. The affected congeners were flagged "I" on the results table.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of PCB congeners at the reporting limits. This indicates that the sample preparation procedures did not significantly contribute to the PCB content of the sample material.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native compounds were recovered at 81-160%, with relative percent differences of 0.0-20.7%. The recoveries for congeners #1 and #4 were somewhat elevated and were flagged "R" on the results tables. The RPD for congener #1 was also above the 20% threshold used by Pace Analytival. This could indicate a high bias or increased variability in the measurement of these congeners. However, these congeners were not detected within the reporting range for the sample. Matrix spikes were not extracted with this sample batch.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
A2LA	2926.01	Minnesota - Pet	1240
Alabama	40770	Mississippi	MN00064
Alaska - DW	MN00064	Missouri - DW	10100
Alaska - UST	17-009	Montana	CERT0092
Arizona	AZ0014	Nebraska	NE-OS-18-06
Arkansas - DW	MN00064	Nevada	MN00064
Arkansas - WW	88-0680	New Hampshire	2081
CNMI Saipan	MP0003	New Jersey (NE	MN002
California	2929	New York	11647
Colorado	MN00064	North Carolina	27700
Connecticut	PH-0256	North Carolina -	27700
EPA Region 8+	via MN 027-053	North Carolina -	530
Florida (NELAP	E87605	North Dakota	R-036
Georgia	959	Ohio - DW	41244
Guam	17-001r	Ohio - VAP	CL101
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon - Primar	MN300001
Illinois	200011	Oregon - Secon	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky - DW	90062	South Dakota	NA
Kentucky - WW	90062	Tennessee	TN02818
Louisiana - DE	03086	Texas	T104704192
Louisiana - DW	MN00064	Utah (NELAP)	MN00064
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts	M-MN064	West Virginia -	382
Michigan	9909	West Virginia -	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota - De	via MN 027-053	Wyoming - UST	2926.01

REPORT OF LABORATORY ANALYSIS

Appendix A

Sample Management

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:
Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414

TEL: (612) 607-1700
FAX: (612) 607-6444
Acct #:

Field Sampler: Nils Orficzky

04-Dec-18

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				1668c		
N033183-001E / HTTMDL-11-30	Wastewater	11/30/2018 8:25:00 AM	32OZA	1		001

WO# : 10457600

10457600

EDD Requirement CH2MHILL Labspec 7 edata. Please report "J" flagged down to MDL format.

Please CC Report to Lucille Glosinda at lucille.golosinda@assetlaboratories.com

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N33183A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyzed for Total PCBs by 1668 at 250 pg/L. California sample

Fedex #: 773879368586

	Date/Time		Date/Time
Relinquished by:	12/4/2018 16:00	**Received by:** Exp Pace	12/5/18 10:13
Relinquished by:		**Received by:**	

Temp: 2.7°C

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 31Oct2018 Page 1 of 2
	Document No.: **F-MN-L-213-rev.24**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: ASSET Laboratory **Project #:** **WO#: 10457600**

PM: JMR **Due Date: 12/19/18**

CLIENT: Asset Labs

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client

☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other: _____

Tracking Number: 9738 7936 8582

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No **Optional:** Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☐ Yes ☑ No

Thermometer Used: ☐ G87A9170600254 ☑ G87A9155100842 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Cooler Temp Read (°C): 2.3 **Cooler Temp Corrected (°C):** 2.3 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** 0.0 **Date and Initials of Person Examining Contents:** FE 12/5/18

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No		1.
Chain of Custody Filled Out?	☑ Yes	☐ No		2.
Chain of Custody Relinquished?	☑ Yes	☐ No		3.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No		5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		6.
Rush Turn Around Time Requested?	☐ Yes	☑ No		7.
Sufficient Volume?	☑ Yes	☐ No		8.
Correct Containers Used?	☑ Yes	☐ No		9.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
is sufficient information available to reconcile the samples to the COC? Matrix: WW	☑ Yes	☐ No		12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH Positive for Res. Chlorine? Y N
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Initial when completed: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased): N/A				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Joanne Richardson **Date:** 12-5-18

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: _____

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interferencepresent

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

Appendix B

Sample Analysis Summary

Pace Analytical Services, LLC.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668C Polychlorobiphenyl Sample Analysis Results

Client - Asset Laboratories

Client's Sample ID	N033183-001E		
Lab Sample ID	10457600001		
Filename	P181217A_13		
Injected By	ZMS		
Total Amount Extracted	915 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	11/30/2018 08:25
ICAL ID	P181217A03	Received	12/05/2018 10:10
CCal Filename(s)	P181217A_04	Extracted	12/12/2018 14:45
Method Blank ID	BLANK-66901	Analyzed	12/17/2018 22:41

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery	
Labeled Analytes							
13C-2-MoCB	1	9.241	2.60	2.0	0.432	23	I
13C-4-MoCB	3	12.056	3.03	2.0	0.511	26	
13C-2,2'-DiCB	4	12.361	1.75	2.0	0.328	16	
13C-4,4'-DiCB	15	19.560	1.48	2.0	0.565	28	
13C-2,2',6-TrCB	19	16.256	1.32	2.0	0.359	20	I
13C-3,4,4'-TrCB	37	27.593	1.19	2.0	0.893	45	
13C-2,2',6,6'-TeCB	54	19.920	0.79	2.0	0.283	14	
13C-3,4,4',5-TeCB	81	34.978	0.77	2.0	1.17	58	
13C-3,3',4,4'-TeCB	77	35.565	0.76	2.0	1.24	62	
13C-2,2',4,6,6'-PeCB	104	26.231	1.72	2.0	0.377	19	
13C-2,3,3',4,4'-PeCB	105	39.314	1.67	2.0	1.09	55	
13C-2,3,4,4',5-PeCB	114	38.644	1.66	2.0	1.06	53	
13C-2,3',4,4',5-PeCB	118	38.074	1.56	2.0	1.06	53	
13C-2,3',4,4',5'-PeCB	123	37.722	1.58	2.0	1.04	52	
13C-3,3',4,4',5-PeCB	126	42.617	1.49	2.0	1.03	52	
13C-2,2',4,4',6,6'-HxCB	155	32.503	1.31	2.0	0.594	30	
13C-HxCB(156/157)	156/157	45.808	1.24	4.0	2.11	53	
13C-2,3',4,4',5,5'-HxCB	167	44.601	1.24	2.0	1.01	51	
13C-3,3',4,4',5,5'-HxCB	169	49.211	1.23	2.0	1.04	52	
13C-2,2',3,4',5,6,6'-HpCB	188	38.644	1.01	2.0	0.860	43	
13C-2,3,3',4,4',5,5'-HpCB	189	51.890	0.98	2.0	0.989	49	
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.349	0.86	2.0	0.951	48	
13C-2,3,3',4,4',5,5',6-OcCB	205	54.583	0.90	2.0	1.27	64	
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.415	0.78	2.0	1.51	76	
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.394	0.87	2.0	0.749	37	
13C-DeCB	209	58.096	0.70	2.0	1.72	86	
CleanupStandards							
13C-2,4,4'-TrCB	28	23.091	0.91	2.0	1.57	79	
13C-2,3,3',5,5'-PeCB	111	35.627	1.60	2.0	1.40	70	
13C-2,2',3,3',5,5',6-HpCB	178	41.879	1.13	2.0	1.56	78	
Recovery Standards							
13C-2,5-DiCB	9	14.852	1.52	2.0	NA	NA	
13C-2,2',5,5'-TeCB	52	25.164	0.84	2.0	NA	NA	
13C-2,2',4,5,5'-PeCB	101	32.735	1.49	2.0	NA	NA	
13C-2,2',3,4,4',5'-HxCB	138	41.393	1.30	2.0	NA	NA	
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.088	0.86	2.0	NA	NA	

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668C Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033183-001E
Lab Sample ID	10457600001
Filename	P181217A_13

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.273
2		---	---	ND	---	0.273
3		---	---	ND	---	0.273
4		---	---	ND A	---	0.906
5		---	---	ND A	---	0.326
6		---	---	ND A	---	0.295
7		---	---	ND A	---	0.288
8		---	---	ND	---	0.273
9		---	---	ND A	---	0.299
10		---	---	ND A	---	0.301
11		---	---	ND	---	2.68
12	12/13	---	---	ND	---	0.546
13	12/13	---	---	ND	---	0.546
14		---	---	ND A	---	0.292
15		---	---	ND	---	0.361
16		---	---	ND	---	0.273
17		---	---	ND	---	0.273
18	18/30	---	---	ND	---	0.546
19		---	---	ND	---	0.273
20	20/28	---	---	ND	---	1.41
21	21/33	---	---	ND	---	1.47
22		---	---	ND	---	1.04
23		---	---	ND	---	0.273
24		---	---	ND	---	0.273
25		---	---	ND	---	0.273
26	26/29	---	---	ND	---	0.546
27		---	---	ND	---	0.273
28	20/28	---	---	ND	---	1.41
29	26/29	---	---	ND	---	0.546
30	18/30	---	---	ND	---	0.546
31		---	---	ND	---	1.42
32		---	---	ND	---	0.273
33	21/33	---	---	ND	---	1.47
34		---	---	ND	---	0.273
35		---	---	ND	---	0.273
36		---	---	ND	---	0.273
37		---	---	ND	---	0.579
38		---	---	ND	---	0.273
39		---	---	ND	---	0.273
40	40/41/71	---	---	ND	---	1.64
41	40/41/71	---	---	ND	---	1.64
42		---	---	ND	---	0.546
43	43/73	---	---	ND	---	0.546
44	44/47/65	---	---	ND	---	1.64
45	45/51	---	---	ND	---	1.09
46		---	---	ND	---	0.546
47	44/47/65	---	---	ND	---	1.64
48		---	---	ND	---	0.546

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668C Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033183-001E
Lab Sample ID	10457600001
Filename	P181217A_13

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
49	49/69	---	---	ND	---	1.09
50	50/53	---	---	ND	---	1.09
51	45/51	---	---	ND	---	1.09
52		---	---	ND	---	1.68
53	50/53	---	---	ND	---	1.09
54		---	---	ND	---	0.546
55		---	---	ND	---	0.546
56		---	---	ND	---	0.546
57		---	---	ND	---	0.546
58		---	---	ND	---	0.546
59	59/62/75	---	---	ND	---	1.64
60		---	---	ND	---	0.546
61	61/70/74/76	---	---	ND	---	2.19
62	59/62/75	---	---	ND	---	1.64
63		---	---	ND	---	0.546
64		---	---	ND	---	0.546
65	44/47/65	---	---	ND	---	1.64
66		---	---	ND	---	0.918
67		---	---	ND	---	0.546
68		---	---	ND	---	0.546
69	49/69	---	---	ND	---	1.09
70	61/70/74/76	---	---	ND	---	2.19
71	40/41/71	---	---	ND	---	1.64
72		---	---	ND	---	0.546
73	43/73	---	---	ND	---	0.546
74	61/70/74/76	---	---	ND	---	2.19
75	59/62/75	---	---	ND	---	1.64
76	61/70/74/76	---	---	ND	---	2.19
77		---	---	ND	---	0.546
78		---	---	ND	---	0.546
79		---	---	ND	---	0.546
80		---	---	ND	---	0.546
81		---	---	ND	---	0.546
82		---	---	ND	---	0.546
83		---	---	ND	---	0.546
84		---	---	ND	---	0.546
85	85/116/117	---	---	ND	---	1.64
86	86/87/97/108/119/125	---	---	ND	---	3.28
87	86/87/97/108/119/125	---	---	ND	---	3.28
88	88/91	---	---	ND	---	1.09
89		---	---	ND	---	0.546
90	90/101/113	---	---	ND	---	1.64
91	88/91	---	---	ND	---	1.09
92		---	---	ND	---	0.546
93	93/98/100/102	---	---	ND	---	2.19
94		---	---	ND	---	0.546
95		---	---	ND	---	1.04
96		---	---	ND	---	0.546

Conc = Concentration
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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668C Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033183-001E
Lab Sample ID	10457600001
Filename	P181217A_13

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND	---	3.28
98	93/98/100/102	---	---	ND	---	2.19
99		---	---	ND	---	0.546
100	93/98/100/102	---	---	ND	---	2.19
101	90/101/113	---	---	ND	---	1.64
102	93/98/100/102	---	---	ND	---	2.19
103		---	---	ND	---	0.546
104		---	---	ND	---	0.546
105		---	---	ND	---	0.546
106		---	---	ND	---	0.546
107	107/124	---	---	ND	---	1.09
108	86/87/97/108/119/125	---	---	ND	---	3.28
109		---	---	ND	---	0.546
110	110/115	---	---	ND	---	1.09
111		---	---	ND	---	0.546
112		---	---	ND	---	0.546
113	90/101/113	---	---	ND	---	1.64
114		---	---	ND	---	0.546
115	110/115	---	---	ND	---	1.09
116	85/116/117	---	---	ND	---	1.64
117	85/116/117	---	---	ND	---	1.64
118		---	---	ND	---	0.699
119	86/87/97/108/119/125	---	---	ND	---	3.28
120		---	---	ND	---	0.546
121		---	---	ND	---	0.546
122		---	---	ND	---	0.546
123		---	---	ND	---	0.546
124	107/124	---	---	ND	---	1.09
125	86/87/97/108/119/125	---	---	ND	---	3.28
126		---	---	ND	---	0.546
127		---	---	ND	---	0.546
128	128/166	---	---	ND	---	1.09
129	129/138/163	---	---	ND	---	1.64
130		---	---	ND	---	0.546
131		---	---	ND	---	0.546
132		---	---	ND	---	0.546
133		---	---	ND	---	0.546
134	134/143	---	---	ND	---	1.09
135	135/151	---	---	ND	---	1.09
136		---	---	ND	---	0.546
137		---	---	ND	---	0.546
138	129/138/163	---	---	ND	---	1.64
139	139/140	---	---	ND	---	1.09
140	139/140	---	---	ND	---	1.09
141		---	---	ND	---	0.546
142		---	---	ND	---	0.546
143	134/143	---	---	ND	---	1.09
144		---	---	ND	---	0.546

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Method 1668C Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033183-001E
Lab Sample ID	10457600001
Filename	P181217A_13

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
145		---	---	ND	---	0.546
146		---	---	ND	---	0.546
147	147/149	---	---	ND	---	1.09
148		---	---	ND	---	0.546
149	147/149	---	---	ND	---	1.09
150		---	---	ND	---	0.546
151	135/151	---	---	ND	---	1.09
152		---	---	ND	---	0.546
153	153/168	---	---	ND	---	1.09
154		---	---	ND	---	0.546
155		---	---	ND	---	0.546
156	156/157	---	---	ND	---	1.09
157	156/157	---	---	ND	---	1.09
158		---	---	ND	---	0.546
159		---	---	ND	---	0.546
160		---	---	ND	---	0.546
161		---	---	ND	---	0.546
162		---	---	ND	---	0.546
163	129/138/163	---	---	ND	---	1.64
164		---	---	ND	---	0.546
165		---	---	ND	---	0.546
166	128/166	---	---	ND	---	1.09
167		---	---	ND	---	0.546
168	153/168	---	---	ND	---	1.09
169		---	---	ND	---	0.546
170		---	---	ND	---	0.546
171	171/173	---	---	ND	---	1.09
172		---	---	ND	---	0.546
173	171/173	---	---	ND	---	1.09
174		---	---	ND	---	0.546
175		---	---	ND	---	0.546
176		---	---	ND	---	0.546
177		---	---	ND	---	0.546
178		---	---	ND	---	0.546
179		---	---	ND	---	0.546
180	180/193	---	---	ND	---	1.09
181		---	---	ND	---	0.546
182		---	---	ND	---	0.546
183	183/185	---	---	ND	---	1.09
184		---	---	ND	---	0.546
185	183/185	---	---	ND	---	1.09
186		---	---	ND	---	0.546
187		---	---	ND	---	0.546
188		---	---	ND	---	0.546
189		---	---	ND	---	0.546
190		---	---	ND	---	0.546
191		---	---	ND	---	0.546
192		---	---	ND	---	0.546

Conc = Concentration
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Method 1668C Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033183-001E
Lab Sample ID	10457600001
Filename	P181217A_13

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	---	---	ND	---	1.09
194		---	---	ND	---	0.819
195		---	---	ND	---	0.819
196		---	---	ND	---	0.819
197	197/200	---	---	ND	---	1.64
198	198/199	---	---	ND	---	1.64
199	198/199	---	---	ND	---	1.64
200	197/200	---	---	ND	---	1.64
201		---	---	ND	---	0.819
202		---	---	ND	---	0.819
203		---	---	ND	---	0.819
204		---	---	ND	---	0.819
205		---	---	ND	---	0.819
206		---	---	ND	---	0.819
207		---	---	ND	---	0.819
208		---	---	ND	---	0.819
209		---	---	ND	---	0.819

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Method 1668C Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033183-001E
Lab Sample ID	10457600001
Filename	P181217A_13

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	ND
Total Trichloro Biphenyls	ND
Total Tetrachloro Biphenyls	ND
Total Pentachloro Biphenyls	ND
Total Hexachloro Biphenyls	ND
Total Heptachloro Biphenyls	ND
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
DecachloroBiphenyls	ND
Total PCBs	ND

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

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Tel: 612-607-1700
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Method 1668C Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-66901		
Filename	P181217A_11		
Injected By	ZMS	Matrix	Water (Non Potable)
Total Amount Extracted	1030 mL	Extracted	12/12/2018 14:45
ICAL ID	P181217A03	Analyzed	12/17/2018 20:36
CCal Filename(s)	P181217A_04	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	9.252	2.91	2.0	0.680	34
13C-4-MoCB	3	12.057	2.92	2.0	0.819	41
13C-2,2'-DiCB	4	12.362	1.67	2.0	0.617	31
13C-4,4'-DiCB	15	19.594	1.57	2.0	0.847	42
13C-2,2',6-TrCB	19	16.234	1.35	2.0	0.537	31
13C-3,4,4'-TrCB	37	27.579	0.98	2.0	1.16	58
13C-2,2',6,6'-TeCB	54	19.921	0.76	2.0	0.439	22
13C-3,4,4',5-TeCB	81	34.966	0.78	2.0	1.30	65
13C-3,3',4,4'-TeCB	77	35.554	0.81	2.0	1.40	70
13C-2,2',4,6,6'-PeCB	104	26.233	1.59	2.0	0.447	22
13C-2,3,3',4,4'-PeCB	105	39.318	1.50	2.0	1.40	70
13C-2,3,4,4',5-PeCB	114	38.647	1.61	2.0	1.35	68
13C-2,3',4,4',5-PeCB	118	38.077	1.50	2.0	1.31	66
13C-2,3',4,4',5'-PeCB	123	37.725	1.56	2.0	1.33	67
13C-3,3',4,4',5-PeCB	126	42.604	1.53	2.0	1.41	70
13C-2,2',4,4',6,6'-HxCB	155	32.506	1.28	2.0	0.760	38
13C-HxCB (156/157)	156/157	45.812	1.25	4.0	2.70	68
13C-2,3',4,4',5,5'-HxCB	167	44.588	1.21	2.0	1.32	66
13C-3,3',4,4',5,5'-HxCB	169	49.216	1.21	2.0	1.34	67
13C-2,2',3,4',5,6,6'-HpCB	188	38.647	1.03	2.0	1.04	52
13C-2,3,3',4,4',5,5'-HpCB	189	51.873	1.00	2.0	1.23	62
13C-2,2',3,3',5,5',6,6'-OcCB	202	44.337	0.87	2.0	1.13	56
13C-2,3,3',4,4',5,5',6-OcCB	205	54.588	0.87	2.0	1.43	71
13C-2,2',3,3',4,4',5,5',6-NoCB	206	56.420	0.72	2.0	1.62	81
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	51.377	0.81	2.0	1.41	70
13C-DeCB	209	58.101	0.67	2.0	1.81	90
Cleanup Standards						
13C-2,4,4'-TrCB	28	23.093	0.93	2.0	1.58	79
13C-2,3,3',5,5'-PeCB	111	35.646	1.62	2.0	1.42	71
13C-2,2',3,3',5,5',6-HpCB	178	41.883	1.03	2.0	1.50	75
Recovery Standards						
13C-2,5-DiCB	9	14.863	1.68	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	25.181	0.85	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	32.722	1.56	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	41.397	1.23	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	54.092	0.90	2.0	NA	NA

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Method 1668C Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-66901
Filename P181217A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.242
2		---	---	ND	---	0.242
3		---	---	ND	---	0.242
4		---	---	ND	---	0.242
5		---	---	ND	---	0.242
6		---	---	ND	---	0.242
7		---	---	ND	---	0.242
8		---	---	ND	---	0.242
9		---	---	ND	---	0.242
10		---	---	ND	---	0.242
11		---	---	ND	---	2.37
12	12/13	---	---	ND	---	0.485
13	12/13	---	---	ND	---	0.485
14		---	---	ND	---	0.242
15		---	---	ND	---	0.320
16		---	---	ND	---	0.242
17		---	---	ND	---	0.242
18	18/30	---	---	ND	---	0.485
19		---	---	ND	---	0.242
20	20/28	---	---	ND	---	1.25
21	21/33	---	---	ND	---	1.31
22		---	---	ND	---	0.921
23		---	---	ND	---	0.242
24		---	---	ND	---	0.242
25		---	---	ND	---	0.242
26	26/29	---	---	ND	---	0.485
27		---	---	ND	---	0.242
28	20/28	---	---	ND	---	1.25
29	26/29	---	---	ND	---	0.485
30	18/30	---	---	ND	---	0.485
31		---	---	ND	---	1.26
32		---	---	ND	---	0.242
33	21/33	---	---	ND	---	1.31
34		---	---	ND	---	0.242
35		---	---	ND	---	0.242
36		---	---	ND	---	0.242
37		---	---	ND	---	0.514
38		---	---	ND	---	0.242
39		---	---	ND	---	0.242
40	40/41/71	---	---	ND	---	1.45
41	40/41/71	---	---	ND	---	1.45
42		---	---	ND	---	0.485
43	43/73	---	---	ND	---	0.485
44	44/47/65	---	---	ND	---	1.45
45	45/51	---	---	ND	---	0.969

Conc = Concentration
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ng/L = Nanograms per liter

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NA = Not Applicable
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Method 1668C Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-66901
Filename P181217A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46		---	---	ND	---	0.485
47	44/47/65	---	---	ND	---	1.45
48		---	---	ND	---	0.485
49	49/69	---	---	ND	---	0.969
50	50/53	---	---	ND	---	0.969
51	45/51	---	---	ND	---	0.969
52		---	---	ND	---	1.49
53	50/53	---	---	ND	---	0.969
54		---	---	ND	---	0.485
55		---	---	ND	---	0.485
56		---	---	ND	---	0.485
57		---	---	ND	---	0.485
58		---	---	ND	---	0.485
59	59/62/75	---	---	ND	---	1.45
60		---	---	ND	---	0.485
61	61/70/74/76	---	---	ND	---	1.94
62	59/62/75	---	---	ND	---	1.45
63		---	---	ND	---	0.485
64		---	---	ND	---	0.485
65	44/47/65	---	---	ND	---	1.45
66		---	---	ND	---	0.814
67		---	---	ND	---	0.485
68		---	---	ND	---	0.485
69	49/69	---	---	ND	---	0.969
70	61/70/74/76	---	---	ND	---	1.94
71	40/41/71	---	---	ND	---	1.45
72		---	---	ND	---	0.485
73	43/73	---	---	ND	---	0.485
74	61/70/74/76	---	---	ND	---	1.94
75	59/62/75	---	---	ND	---	1.45
76	61/70/74/76	---	---	ND	---	1.94
77		---	---	ND	---	0.485
78		---	---	ND	---	0.485
79		---	---	ND	---	0.485
80		---	---	ND	---	0.485
81		---	---	ND	---	0.485
82		---	---	ND	---	0.485
83		---	---	ND	---	0.485
84		---	---	ND	---	0.485
85	85/116/117	---	---	ND	---	1.45
86	86/87/97/108/119/125	---	---	ND	---	2.91
87	86/87/97/108/119/125	---	---	ND	---	2.91
88	88/91	---	---	ND	---	0.969
89		---	---	ND	---	0.485
90	90/101/113	---	---	ND	---	1.45

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ng/L = Nanograms per liter

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668C Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-66901
Filename P181217A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91	---	---	ND	---	0.969
92		---	---	ND	---	0.485
93	93/98/100/102	---	---	ND	---	1.94
94		---	---	ND	---	0.485
95		---	---	ND	---	0.921
96		---	---	ND	---	0.485
97	86/87/97/108/119/125	---	---	ND	---	2.91
98	93/98/100/102	---	---	ND	---	1.94
99		---	---	ND	---	0.485
100	93/98/100/102	---	---	ND	---	1.94
101	90/101/113	---	---	ND	---	1.45
102	93/98/100/102	---	---	ND	---	1.94
103		---	---	ND	---	0.485
104		---	---	ND	---	0.485
105		---	---	ND	---	0.485
106		---	---	ND	---	0.485
107	107/124	---	---	ND	---	0.969
108	86/87/97/108/119/125	---	---	ND	---	2.91
109		---	---	ND	---	0.485
110	110/115	---	---	ND	---	0.969
111		---	---	ND	---	0.485
112		---	---	ND	---	0.485
113	90/101/113	---	---	ND	---	1.45
114		---	---	ND	---	0.485
115	110/115	---	---	ND	---	0.969
116	85/116/117	---	---	ND	---	1.45
117	85/116/117	---	---	ND	---	1.45
118		---	---	ND	---	0.620
119	86/87/97/108/119/125	---	---	ND	---	2.91
120		---	---	ND	---	0.485
121		---	---	ND	---	0.485
122		---	---	ND	---	0.485
123		---	---	ND	---	0.485
124	107/124	---	---	ND	---	0.969
125	86/87/97/108/119/125	---	---	ND	---	2.91
126		---	---	ND	---	0.485
127		---	---	ND	---	0.485
128	128/166	---	---	ND	---	0.969
129	129/138/163	---	---	ND	---	1.45
130		---	---	ND	---	0.485
131		---	---	ND	---	0.485
132		---	---	ND	---	0.485
133		---	---	ND	---	0.485
134	134/143	---	---	ND	---	0.969
135	135/151	---	---	ND	---	0.969

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
ng/L = Nanograms per liter

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
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Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668C Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-66901
Filename P181217A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136		---	---	ND	---	0.485
137		---	---	ND	---	0.485
138	129/138/163	---	---	ND	---	1.45
139	139/140	---	---	ND	---	0.969
140	139/140	---	---	ND	---	0.969
141		---	---	ND	---	0.485
142		---	---	ND	---	0.485
143	134/143	---	---	ND	---	0.969
144		---	---	ND	---	0.485
145		---	---	ND	---	0.485
146		---	---	ND	---	0.485
147	147/149	---	---	ND	---	0.969
148		---	---	ND	---	0.485
149	147/149	---	---	ND	---	0.969
150		---	---	ND	---	0.485
151	135/151	---	---	ND	---	0.969
152		---	---	ND	---	0.485
153	153/168	---	---	ND	---	0.969
154		---	---	ND	---	0.485
155		---	---	ND	---	0.485
156	156/157	---	---	ND	---	0.969
157	156/157	---	---	ND	---	0.969
158		---	---	ND	---	0.485
159		---	---	ND	---	0.485
160		---	---	ND	---	0.485
161		---	---	ND	---	0.485
162		---	---	ND	---	0.485
163	129/138/163	---	---	ND	---	1.45
164		---	---	ND	---	0.485
165		---	---	ND	---	0.485
166	128/166	---	---	ND	---	0.969
167		---	---	ND	---	0.485
168	153/168	---	---	ND	---	0.969
169		---	---	ND	---	0.485
170		---	---	ND	---	0.485
171	171/173	---	---	ND	---	0.969
172		---	---	ND	---	0.485
173	171/173	---	---	ND	---	0.969
174		---	---	ND	---	0.485
175		---	---	ND	---	0.485
176		---	---	ND	---	0.485
177		---	---	ND	---	0.485
178		---	---	ND	---	0.485
179		---	---	ND	---	0.485
180	180/193	---	---	ND	---	0.969

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
ng/L = Nanograms per liter

ND = Not Detected
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NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668C Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-66901
Filename P181217A_11

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181		---	---	ND	---	0.485
182		---	---	ND	---	0.485
183	183/185	---	---	ND	---	0.969
184		---	---	ND	---	0.485
185	183/185	---	---	ND	---	0.969
186		---	---	ND	---	0.485
187		---	---	ND	---	0.485
188		---	---	ND	---	0.485
189		---	---	ND	---	0.485
190		---	---	ND	---	0.485
191		---	---	ND	---	0.485
192		---	---	ND	---	0.485
193	180/193	---	---	ND	---	0.969
194		---	---	ND	---	0.727
195		---	---	ND	---	0.727
196		---	---	ND	---	0.727
197	197/200	---	---	ND	---	1.45
198	198/199	---	---	ND	---	1.45
199	198/199	---	---	ND	---	1.45
200	197/200	---	---	ND	---	1.45
201		---	---	ND	---	0.727
202		---	---	ND	---	0.727
203		---	---	ND	---	0.727
204		---	---	ND	---	0.727
205		---	---	ND	---	0.727
206		---	---	ND	---	0.727
207		---	---	ND	---	0.727
208		---	---	ND	---	0.727
209		---	---	ND	---	0.727

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
ng/L = Nanograms per liter

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
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REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668C Polychlorobiphenyl
Blank Analysis Results

Client Sample ID	CBLKFR
Lab Sample ID	BLANK-66901
Filename	P181217A_11

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	ND
Total Trichloro Biphenyls	ND
Total Tetrachloro Biphenyls	ND
Total Pentachloro Biphenyls	ND
Total Hexachloro Biphenyls	ND
Total Heptachloro Biphenyls	ND
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
DecachloroBiphenyls	ND
Total PCBs	ND

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC.
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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668C Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-66902		
Filename	P181217A_07	Matrix	Water
Total Amount Extracted	1040 mL	Dilution	NA
ICAL ID	P181217A03	Extracted	12/12/2018 14:45
CCal Filename(s)	P181217A_04	Analyzed	12/17/2018 16:26
Method Blank ID	BLANK-66901	Injected By	ZMS

	Native Analytes				Labeled Analytes			
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**		**Spiked (ng)**	**Found (ng)**	**% Recovery**	
1	1.0	1.60	160	R	2.0	0.752	38	
3	1.0	1.17	117		2.0	1.04	52	
4	1.0	1.32	132		2.0	0.912	46	
15	1.0	0.994	99		2.0	1.34	67	
19	1.0	0.886	89		2.0	1.22	67	I
37	1.0	0.807	81		2.0	1.56	78	
54	1.0	0.983	98		2.0	1.11	55	
81	1.0	0.866	87		2.0	1.57	78	
77	1.0	0.886	89		2.0	1.55	78	
104	1.0	0.905	99	I	2.0	1.38	69	
105	1.0	0.865	87		2.0	1.52	76	
114	1.0	0.833	83		2.0	1.53	76	
118	1.0	0.880	88		2.0	1.59	79	
123	1.0	0.893	89		2.0	1.58	79	
126	1.0	0.840	84		2.0	1.55	77	
155	1.0	0.965	97		2.0	1.47	74	
156/157	2.0	1.76	88		4.0	2.67	67	
167	1.0	0.883	88		2.0	1.35	67	
169	1.0	0.912	91		2.0	1.33	66	
188	1.0	0.978	98		2.0	1.91	95	
189	1.0	0.895	89		2.0	1.51	76	
202	1.0	1.01	101		2.0	1.89	94	
205	1.0	0.886	89		2.0	1.76	88	
206	1.0	0.950	95		2.0	2.00	100	
208	1.0	0.906	91		2.0	1.94	97	
209	1.0	0.866	87		2.0	2.27	113	

R = Recovery outside of method 1668A control limits
Nn = Result obtained from alternate analysis
ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
ng = Nanograms
I = Interference

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1668C Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-66903		
Filename	P181217A_08	Matrix	Water
Total Amount Extracted	1040 mL	Dilution	NA
ICAL ID	P181217A03	Extracted	12/12/2018 14:45
CCal Filename(s)	P181217A_04	Analyzed	12/17/2018 17:28
Method Blank ID	BLANK-66901	Injected By	ZMS

	Native Analytes				Labeled Analytes			
PCB Isomer	Spiked (ng)	Found (ng)	% Recovery		Spiked (ng)	Found (ng)	% Recovery	
1	1.0	1.30	130		2.0	0.962	48	
3	1.0	1.17	117		2.0	1.13	57	
4	1.0	1.19	136	I	2.0	1.05	53	
15	1.0	1.03	103		2.0	1.37	69	
19	1.0	1.02	102		2.0	1.22	61	
37	1.0	0.861	86		2.0	1.70	85	
54	1.0	1.03	103		2.0	1.16	58	
81	1.0	0.957	96		2.0	1.59	80	
77	1.0	0.939	94		2.0	1.64	82	
104	1.0	0.979	98		2.0	1.21	67	I
105	1.0	0.986	99		2.0	1.58	79	
114	1.0	0.918	92		2.0	1.66	83	
118	1.0	0.947	95		2.0	1.61	81	
123	1.0	0.994	99		2.0	1.62	81	
126	1.0	0.948	95		2.0	1.67	83	
155	1.0	1.01	101		2.0	1.33	66	
156/157	2.0	2.00	100		4.0	2.85	71	
167	1.0	0.983	98		2.0	1.45	73	
169	1.0	0.936	94		2.0	1.46	73	
188	1.0	1.05	105		2.0	1.34	67	
189	1.0	1.02	102		2.0	1.42	71	
202	1.0	1.14	114		2.0	1.36	68	
205	1.0	0.928	93		2.0	1.71	85	
206	1.0	1.01	101		2.0	1.91	96	
208	1.0	0.980	98		2.0	1.67	84	
209	1.0	1.01	101		2.0	2.04	102	

R = Recovery outside of method 1668A control limits
Nn = Result obtained from alternate analysis
ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
ng = Nanograms
I = Interference

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
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Method 1668C

Spike Recovery Relative Percent Difference (RPD) Results

Client	Asset Laboratories		
Spike 1 ID	LCS-66902	Spike 2 ID	LCSD-66903
Spike 1 Filename	P181217A_07	Spike 2 Filename	P181217A_08

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	160	130	20.7
4-MoCB	3	117	117	0.0
2,2'-DiCB	4	132	136	3.0
4,4'-DiCB	15	99	103	4.0
2,2',6-TrCB	19	89	102	13.6
3,4,4'-TrCB	37	81	86	6.0
2,2',6,6'-TeCB	54	98	103	5.0
3,3',4,4'-TeCB	77	89	94	5.5
3,4,4',5-TeCB	81	87	96	9.8
2,2',4,6,6'-PeCB	104	99	98	1.0
2,3,3',4,4'-PeCB	105	87	99	12.9
2,3,4,4',5-PeCB	114	83	92	10.3
2,3',4,4',5-PeCB	118	88	95	7.7
2,3',4,4',5'-PeCB	123	89	99	10.6
3,3',4,4',5-PeCB	126	84	95	12.3
2,2',4,4',6,6'-HxCB	155	97	101	4.0
(156/157)	156/157	88	100	12.8
2,3',4,4',5,5'-HxCB	167	88	98	10.8
3,3',4,4',5,5'-HxCB	169	91	94	3.2
2,2',3,4',5,6,6'-HpCB	188	98	105	6.9
2,3,3',4,4',5,5'-HpCB	189	89	102	13.6
2,2',3,3',5,5',6,6'-OcCB	202	101	114	12.1
2,3,3',4,4',5,5',6-OcCB	205	89	93	4.4
2,2',3,3',4,4',5,5',6-NoCB	206	95	101	6.1
2,2',3,3',4,5,5',6,6'-NoCB	208	91	98	7.4
Decachlorobiphenyl	209	87	101	14.9

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

January 23, 2019

Eric Davis
CH2MHill
1000 Wilshire Blvd.
Los Angeles, CA 90017

TEL:
FAX:

Workorder No.: N033767

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on January 15, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Quennie Manimtim
Laboratory Director

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N033767

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Sample was analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Subcontracted Analyses:

Total PCB was subcontracted to Pace Analytical Services, Inc., Minneapolis, MN.

EPA 8081 was subcontracted to Test America, Irvine, CA.

Analytical Comment for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N033767
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N033767-001A	HTTMDL-01-15	Wastewater	1/15/2019 10:17:00 AM	1/15/2019	1/23/2019
N033767-001B	HTTMDL-01-15	Wastewater	1/15/2019 10:17:00 AM	1/15/2019	1/23/2019
N033767-001C	HTTMDL-01-15	Wastewater	1/15/2019 10:17:00 AM	1/15/2019	1/23/2019
N033767-001D	HTTMDL-01-15	Wastewater	1/15/2019 10:17:00 AM	1/15/2019	1/23/2019
N033767-001E	HTTMDL-01-15	Wastewater	1/15/2019 10:17:00 AM	1/15/2019	1/23/2019

CLIENT: CH2MHill
Lab Order: N033767
Project: SFPP Norwalk
Lab ID: N033767-001

Client Sample ID: HTTMDL-01-15
Collection Date: 1/15/2019 10:17:00 AM
Matrix: WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **CA01638-WC01_190116A** QC Batch: **72160**				PrepDate:	**1/16/2019**		Analyst: **GAC**
Suspended Solids (Residue, Non-Filterable)	12	5.0	5.0		mg/L	1	1/16/2019
SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM							
			EPA 3510C				**EPA 8270CSIM**
RunID: **NV00922-MS9_190121C** QC Batch: **72188**				PrepDate:	**1/21/2019**		Analyst: **RRS**
1-Methylnaphthalene	ND	0.043	0.22		ug/L	1	1/21/2019 11:50 PM
2-Methylnaphthalene	ND	0.062	0.22		ug/L	1	1/21/2019 11:50 PM
Acenaphthene	ND	0.052	0.22		ug/L	1	1/21/2019 11:50 PM
Acenaphthylene	ND	0.053	0.22		ug/L	1	1/21/2019 11:50 PM
Anthracene	ND	0.046	0.22		ug/L	1	1/21/2019 11:50 PM
Benzo(a)anthracene	ND	0.039	0.22		ug/L	1	1/21/2019 11:50 PM
Benzo(a)pyrene	ND	0.046	0.22		ug/L	1	1/21/2019 11:50 PM
Benzo(b)fluoranthene	ND	0.046	0.22		ug/L	1	1/21/2019 11:50 PM
Benzo(g,h,i)perylene	ND	0.071	0.22		ug/L	1	1/21/2019 11:50 PM
Benzo(k)fluoranthene	ND	0.059	0.22		ug/L	1	1/21/2019 11:50 PM
Chrysene	ND	0.046	0.22		ug/L	1	1/21/2019 11:50 PM
Dibenz(a,h)anthracene	ND	0.062	0.22		ug/L	1	1/21/2019 11:50 PM
Fluoranthene	ND	0.037	0.22		ug/L	1	1/21/2019 11:50 PM
Fluorene	ND	0.048	0.22		ug/L	1	1/21/2019 11:50 PM
Indeno(1,2,3-cd)pyrene	ND	0.063	0.22		ug/L	1	1/21/2019 11:50 PM
Naphthalene	ND	0.056	0.22		ug/L	1	1/21/2019 11:50 PM
Phenanthrene	ND	0.052	0.22		ug/L	1	1/21/2019 11:50 PM
Pyrene	ND	0.037	0.22		ug/L	1	1/21/2019 11:50 PM
Surr: 1,2-Dichlorobenzene-d4	45.0	0	27-100		%REC	1	1/21/2019 11:50 PM
Surr: 2-Fluorobiphenyl	42.0	0	34-135		%REC	1	1/21/2019 11:50 PM
Surr: 4-Terphenyl-d14	65.0	0	34-167		%REC	1	1/21/2019 11:50 PM
Surr: Nitrobenzene-d5	46.0	0	25-135		%REC	1	1/21/2019 11:50 PM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190118A** QC Batch: **72168**				PrepDate:	**1/18/2019**		Analyst: **CEI**
Copper	ND	0.26	0.50		µg/L	1	1/18/2019 01:13 PM
Lead	0.98	0.13	0.50		µg/L	1	1/18/2019 01:13 PM
Zinc	20	0.27	1.0		µg/L	1	1/18/2019 01:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: CH2MHill
Work Order: N033767
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-72160**	SampType: **LCS**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **1/16/2019**	RunNo: **131257**
Client ID: **LCSW**	Batch ID: **72160**	TestNo: **SM2540D**		Analysis Date: **1/16/2019**	SeqNo: **3262591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	973.000	10	1000	0	97.3	80	120				

Sample ID: **MB-72160**	SampType: **MBLK**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **1/16/2019**	RunNo: **131257**
Client ID: **PBW**	Batch ID: **72160**	TestNo: **SM2540D**		Analysis Date: **1/16/2019**	SeqNo: **3262592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N033761-006A-DUP**	SampType: **DUP**	TestCode: **160.2_2540D_**	Units: **mg/L**	Prep Date: **1/16/2019**	RunNo: **131257**
Client ID: **ZZZZZZ**	Batch ID: **72160**	TestNo: **SM2540D**		Analysis Date: **1/16/2019**	SeqNo: **3262598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	13.000	10						13.00	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033767
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_SFPP

Sample ID: **MB-72168** SampType: **MBLK** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **1/18/2019** RunNo: **131275**
Client ID: **PBW** Batch ID: **72168** TestNo: **EPA 200.8** Analysis Date: **1/18/2019** SeqNo: **3263935**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.50									
Lead	ND	0.50									
Zinc	ND	1.0									

Sample ID: **LCS-72168** SampType: **LCS** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **1/18/2019** RunNo: **131275**
Client ID: **LCSW** Batch ID: **72168** TestNo: **EPA 200.8** Analysis Date: **1/18/2019** SeqNo: **3263936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	10.170	0.50	10.00	0	102	85	115				
Lead	9.971	0.50	10.00	0	99.7	85	115				
Zinc	10.069	1.0	10.00	0	101	85	115				

Sample ID: **N033809-001D-DUP** SampType: **DUP** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **1/18/2019** RunNo: **131275**
Client ID: **ZZZZZZ** Batch ID: **72168** TestNo: **EPA 200.8** Analysis Date: **1/18/2019** SeqNo: **3263939**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.50						0	0	20	
Lead	ND	0.50						0	0	20	
Zinc	4.056	1.0						4.252	4.71	20	

Sample ID: **N033809-001D-MS** SampType: **MS** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **1/18/2019** RunNo: **131275**
Client ID: **ZZZZZZ** Batch ID: **72168** TestNo: **EPA 200.8** Analysis Date: **1/18/2019** SeqNo: **3263941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	7.222	0.50	10.00	0	72.2	75	125				S
Lead	10.264	0.50	10.00	0	103	75	125				
Zinc	13.504	1.0	10.00	4.252	92.5	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033767
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_SFPP

Sample ID: **N033809-001D-MSD** SampType: **MSD** TestCode: **200.8_W_SFP** Units: **µg/L** Prep Date: **1/18/2019** RunNo: **131275**
Client ID: **ZZZZZZ** Batch ID: **72168** TestNo: **EPA 200.8** Analysis Date: **1/18/2019** SeqNo: **3263942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	7.022	0.50	10.00	0	70.2	75	125	7.222	2.80	20	S
Lead	10.203	0.50	10.00	0	102	75	125	10.26	0.595	20	
Zinc	13.113	1.0	10.00	4.252	88.6	75	125	13.50	2.94	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033767
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **LCS-72188** SampType: **LCS** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **1/21/2019** RunNo: **131319**
Client ID: **LCSW** Batch ID: **72188** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **1/21/2019** SeqNo: **3266869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	0.670	0.20	1.000	0	67.0	36	121				
1-Methylnaphthalene	0.650	0.20	1.000	0	65.0	35	131				
Acenaphthene	0.740	0.20	1.000	0	74.0	39	125				
Acenaphthylene	0.730	0.20	1.000	0	73.0	43	140				
Anthracene	0.720	0.20	1.000	0	72.0	41	132				
Benzo(a)anthracene	0.870	0.20	1.000	0	87.0	58	141				
Benzo(a)pyrene	0.670	0.20	1.000	0	67.0	31	142				
Benzo(b)fluoranthene	0.670	0.20	1.000	0	67.0	42	156				
Benzo(g,h,i)perylene	0.620	0.20	1.000	0	62.0	12	171				
Benzo(k)fluoranthene	0.720	0.20	1.000	0	72.0	49	165				
Chrysene	0.840	0.20	1.000	0	84.0	51	155				
Dibenz(a,h)anthracene	0.630	0.20	1.000	0	63.0	28	153				
Fluoranthene	0.850	0.20	1.000	0	85.0	47	158				
Fluorene	0.740	0.20	1.000	0	74.0	40	140				
Indeno(1,2,3-cd)pyrene	0.670	0.20	1.000	0	67.0	20	167				
Naphthalene	0.740	0.20	1.000	0	74.0	39	125				
Phenanthrene	0.750	0.20	1.000	0	75.0	46	144				
Pyrene	0.850	0.20	1.000	0	85.0	39	158				
Surr: 1,2-Dichlorobenzene-d4	0.570		1.000		57.0	27	100				
Surr: 2-Fluorobiphenyl	0.590		1.000		59.0	34	135				
Surr: 4-Terphenyl-d14	0.700		1.000		70.0	34	167				
Surr: Nitrobenzene-d5	0.670		1.000		67.0	25	135				

Sample ID: **LCSD-72188** SampType: **LCSD** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **1/21/2019** RunNo: **131319**
Client ID: **LCSS02** Batch ID: **72188** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **1/21/2019** SeqNo: **3266870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	0.650	0.20	1.000	0	65.0	36	121	0.6700	3.03	30	
1-Methylnaphthalene	0.630	0.20	1.000	0	63.0	35	131	0.6500	3.13	30	
Acenaphthene	0.720	0.20	1.000	0	72.0	39	125	0.7400	2.74	30	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033767
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **LCSD-72188** SampType: **LCSD** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **1/21/2019** RunNo: **131319**
Client ID: **LCSS02** Batch ID: **72188** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **1/21/2019** SeqNo: **3266870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene	0.700	0.20	1.000	0	70.0	43	140	0.7300	4.20	30	
Anthracene	0.730	0.20	1.000	0	73.0	41	132	0.7200	1.38	30	
Benzo(a)anthracene	0.820	0.20	1.000	0	82.0	58	141	0.8700	5.92	30	
Benzo(a)pyrene	0.640	0.20	1.000	0	64.0	31	142	0.6700	4.58	30	
Benzo(b)fluoranthene	0.650	0.20	1.000	0	65.0	42	156	0.6700	3.03	30	
Benzo(g,h,i)perylene	0.590	0.20	1.000	0	59.0	12	171	0.6200	4.96	30	
Benzo(k)fluoranthene	0.680	0.20	1.000	0	68.0	49	165	0.7200	5.71	30	
Chrysene	0.810	0.20	1.000	0	81.0	51	155	0.8400	3.64	30	
Dibenz(a,h)anthracene	0.620	0.20	1.000	0	62.0	28	153	0.6300	1.60	30	
Fluoranthene	0.840	0.20	1.000	0	84.0	47	158	0.8500	1.18	30	
Fluorene	0.720	0.20	1.000	0	72.0	40	140	0.7400	2.74	30	
Indeno(1,2,3-cd)pyrene	0.640	0.20	1.000	0	64.0	20	167	0.6700	4.58	30	
Naphthalene	0.720	0.20	1.000	0	72.0	39	125	0.7400	2.74	30	
Phenanthrene	0.760	0.20	1.000	0	76.0	46	144	0.7500	1.32	30	
Pyrene	0.830	0.20	1.000	0	83.0	39	158	0.8500	2.38	30	
Surr: 1,2-Dichlorobenzene-d4	0.570		1.000		57.0	27	100		0		
Surr: 2-Fluorobiphenyl	0.560		1.000		56.0	34	135		0		
Surr: 4-Terphenyl-d14	0.690		1.000		69.0	34	167		0		
Surr: Nitrobenzene-d5	0.650		1.000		65.0	25	135		0		

Sample ID: **MB-72188** SampType: **MBLK** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **1/21/2019** RunNo: **131319**
Client ID: **PBW** Batch ID: **72188** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **1/21/2019** SeqNo: **3266871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	0.20									
1-Methylnaphthalene	ND	0.20									
Acenaphthene	ND	0.20									
Acenaphthylene	ND	0.20									
Anthracene	ND	0.20									
Benzo(a)anthracene	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033767
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID: **MB-72188** SampType: **MBLK** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **1/21/2019** RunNo: **131319**
Client ID: **PBW** Batch ID: **72188** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **1/21/2019** SeqNo: **3266871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	ND	0.20									
Benzo(b)fluoranthene	ND	0.20									
Benzo(g,h,i)perylene	ND	0.20									
Benzo(k)fluoranthene	ND	0.20									
Chrysene	ND	0.20									
Dibenz(a,h)anthracene	ND	0.20									
Fluoranthene	ND	0.20									
Fluorene	ND	0.20									
Indeno(1,2,3-cd)pyrene	ND	0.20									
Naphthalene	ND	0.20									
Phenanthrene	ND	0.20									
Pyrene	ND	0.20									
Surr: 1,2-Dichlorobenzene-d4	0.580		1.000		58.0	27	100				
Surr: 2-Fluorobiphenyl	0.590		1.000		59.0	34	135				
Surr: 4-Terphenyl-d14	0.680		1.000		68.0	34	167				
Surr: Nitrobenzene-d5	0.670		1.000		67.0	25	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

Asset Laboratories
3151 W. Post Road
Las Vegas, NV 89118
Tel: 702-307-2659 Fax: 702-307-2691
Marlon Cartin (marlon@assetlaboratories.com)

CHAIN OF CUSTODY RECORD

DATE: 1-15-19
PAGE: 1 of 1

Section A Required Client Information:		Section B Required Project Information:	Section C Invoice Information:		Section D Sampler Information:	
Company:	Kinder Morgan Energy Partners Attention: Steve Defibaugh	Report To: Eric Davis	Attention:	Steve Defibaugh - Ref. AFE# 81195	Sampler Name:	Nils Orliczky
Address:	1100 Town & Country Road Orange, CA 92868	Copy To: Steve Defibaugh	Company Name:	Kinder Morgan Energy Partners	Sampler Signature:	[signature]
Email To:	steve_defibaugh@kindermorgan.com eric.davis@ch2m.com	Purchase Order No.:	Address:	1100 Town & Country Road Orange, CA 92868	Sample Date:	1-15-19
Phone: 714-560-4802	Fax: 714-560-4801	Project Name: SFPP Norwalk	ATL Project Manager:	Marlon Cartin		

Section E Required Sample Information

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLING DATE	SAMPLING TIME	TOTAL # OF CONTAINERS	Analysis Test	Total Suspended Solids (SM2540D)	Metals (EPA 200.8 Cu, Pb, Zn)	Pesticides(SW8081A, 2,4-DDT, 4,4-DDT)	PAHs (SW8270A-SIM)	Total PCBs (EPA 1668A)	Comments
								CONTAINER TYPE	P	P	A	A	A	
								# OF CONTAINERS	1	1	2	2	2	
								PRESERVATIVE	--	N	--	--	--	
								VOLUME (mL)	1000	500	1000	1000	1000	
1	HTTMDL-01-15	Mouth of San Gabriel River	WW	G	1/15/19	1017	8		X	X	X	X	X	N033767-01
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

[signature] 1-15-19

Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time
[signature]	1-15-19/1145	KSevilla	1/15/19 1145
KSevilla	1/15/19 1540	[signature]	1/15/19 1540
[signature]	1/15/19 1550	[signature]	1/16/19 0810

IR#2 2.5°C EPO 3320

Turn Around Time (TAT):
- ☐ A = Same Day
- ☐ B = 24 Hours
- ☐ C = 48 Hours
- ☐ D = 72 Hours
- ☒ E = 5 Workdays
- ☐ E = 10 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Matrix:		
W = Water	WW = Wastewater	
O = Oil	P = Product	S = Soil
Others/Specify:		

Preservatives:		
H = HCl	N = HNO3	S = H2SO4
Z = Zn(AC)2	O = NaOH	T = Na2S2O3
Others/Specify:		

Container Type:			
T = Tube	V = VOA	P = Pint	A= Amber
J = Jar	B = Tedlar	G = Glass	
M = Metal	P = Plastic	C = Can	

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	1/15/2019	Workorder:	N033767
Rep sample Temp (Deg C):	2.5	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	Golden State Overnight		
Last 4 digits of Tracking No.:	3320	Packing Material Used:	Bubble Wrap
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: RM 1/16/2019

Reviewed By: MBC 1/18/2019

ASSET Laboratories

WORK ORDER Summary

16-Jan-19

WorkOrder: N033767

Client ID: CH2HI03

Project: SFPP Norwalk **QC Level:** RTNE **Date Received:** 1/15/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N033767-001A	HTTMDL-01-15	1/15/2019 10:17:00 AM	1/22/2019	Wastewater	SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW-CA
			1/22/2019			Total Suspended Solids Prep	☐	☐	☐	WW-CA
N033767-001B			1/22/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			1/22/2019		EPA 200.8	TOTAL METALS BY ICPMS	☐	☐	☐	WW
N033767-001C			1/22/2019		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: 8270C - SIM	☐	☐	☐	WW
			1/22/2019		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WW
N033767-001D			1/22/2019		EPA 8081A	ORGANOCHLORINE PESTICIDES BY GC/ECD	☐	☐	☑	SUB
N033767-001E			1/22/2019		1668c	PCB Congener	☐	☐	☑	SUB
N033767-002A	FOLDER	1/22/2019	1/22/2019		Folder	Folder	☐	☐	☐	LAB
			1/22/2019		Folder	Folder	☐	☐	☐	LAB

SUB: TEST AMERICA

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Page 1 of 1

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11110 Artesia Blvd., Ste B, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Client: ASSET Laboratories	Report to: Marlon Cartin	Bill to: Elvira Allegaert	EDD Requirement	QA/QC	Sampe Receipt Condition
Address: 11110 Artesia Blvd Ste B	Company: Same	Address: Same	Excel EDD ☐	RTNE ☐	Y N
Address: Cerritos, CA 90703	Email: marlon@assetlaboratories.com reports.lv@assetlaboratories.com		Geotracker ☐	RWQCB ☐	1. Chilled ☐ ☐
Phone: 562.219.7435 Fax:	Address: Same	Email to: elvira@assetlaboratories.com PO# N33767A	Labspec7 ☑	CalTrans ☐	2. Headspace ☐ ☐
Submitted By: Marlon Cartin		Phone: Fax:	Others ☐	Level III ☐	3. Container Intact ☐ ☐
Title:	Phone: Fax:		Specify:	LEVEL IV ☐	4. Seal Present ☐ ☐
Signature: Date:	Sampled by:	Matrix: Ground ☐ Sediment ☐ Potable ☐ Soil ☐ NPDES ☐ Other Solid ☐ Surface ☐		Regulatory ☐	5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below:	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		Global ID:	Specify State:	6. Method of Cooling
Project Name: SFPP Norwalk	Signature:				Sample Temp:
Project Number:					

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	PESTICIDES(SW8081A)	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1		HTTMDL-01-15	1/15/19	10:17	WW			X	E	2	A	C	
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

Courier:

Tracking No.

Relinquished by (Signature and Printed Name): 1/15/19	Date / Time 1720	Received by (Signature and Printed Name):	Date / Time
Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time
Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time

Turn Around Time (TAT)

- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☑ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Please analyze for 2,4-DDT (RL=0.1 ppb) and 4,4-DDT (RL=0.05ppb) by EPA 8081

Report format: MDL/PQL "J-flagged". EDD Requirement: "CH2MHILL" LabSpec7.

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

Terms

1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%.
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 30% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H = HCl	N = HNO3	S = H2SO4	C = 4°C	T = Tube	V = VOA	P = Pint
Z = Zn(AC)2	O = NaOH	T = Na2S2O3		J = Jar	B = Tedlar	G = Glass
Others/Specify:				M = Metal	P = Plastic	C = Can

White = Laboratory Copy

Yellow = Customer's Copy

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414

TEL: (612) 607-1700
FAX: (612) 607-6444
Acct #:

Field Sampler: Nils Orliczky

16-Jan-19

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**1668A**		
N033767-001E / HTTMDL-01-15	Wastewater	1/15/2019 10:17:00 AM	32OZA	1		

EDD Requirement CH2MHILL Labspec 7 edata. Please report "J" flagged down to MDL format.

Please CC Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N33767B Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: 5-day TAT.

Please analyze for Total PCBs by EPA 1668A at 250 pg/L. California sample.

Fedex #: 774211607632

		Date/Time		Date/Time
Relinquished by:		1/16/2019 16:00	**Received by:**	
Relinquished by:			**Received by:**	

GSO | GLS

800-322-5555
www.gso.com

Ship From
ASSET LABORATORIES
MOLKY BRAR
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Ship To
ASSET LABORATORIES
MARLON CARTIN
3151 W. POST RD.,
LAS VEGAS, NV 89118

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:
HOLD FOR PICK-UP
Signature Type: STANDARD

Tracking #: 543453320

CPS

LVS

A

LAS VEGAS

C89102A

96755170

Print Date: 1/15/2019 6:08 PM

LABEL INSTRUCTIONS:

IL#2 2.5°C

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-230387-1
Client Project/Site: SFPP Norwalk

For:
Advanced Technology Laboratories
dba Asset Laboratories
3151-3153 W Post Road
Las Vegas, Nevada 89118

Attn: Marlon Cartin

Authorized for release by:
1/24/2019 9:54:26 PM
Janice Hsu, Project Manager I
janice.hsu@testamericainc.com

Designee for

Danielle Roberts, Senior Project Manager
(949)261-1022
danielle.roberts@testamericainc.com

Table of Contents

Sample Summary

Client: Advanced Technology Laboratories
Project/Site: SFPP Norwalk

TestAmerica Job ID: 440-230387-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-230387-1	HTTMDL-01-15	Water	01/15/19 10:17	01/16/19 09:30

Job ID: 440-230387-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-230387-1

Comments
No additional comments.

Receipt
The sample was received on 1/16/2019 9:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0º C.

GC Semi VOA
Method(s) 8081A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-523363 and analytical batch 440-523799. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch: (LCS 440-523363/2-A)

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

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 8081A_LL preparation batch 440-523363. LCS was performed in duplicate to provide precision of data

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

Detection Summary

Client: Advanced Technology Laboratories
Project/Site: SFPP Norwalk

TestAmerica Job ID: 440-230387-1

Client Sample ID: HTTMDL-01-15 **Lab Sample ID: 440-230387-1**

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Advanced Technology Laboratories
Project/Site: SFPP Norwalk

TestAmerica Job ID: 440-230387-1

Client Sample ID: HTTMDL-01-15
Date Collected: 01/15/19 10:17
Date Received: 01/16/19 09:30

Lab Sample ID: 440-230387-1
Matrix: Water

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0053	0.0043	ug/L		01/18/19 09:39	01/21/19 14:38	1
4,4'-DDE	ND		0.0053	0.0032	ug/L		01/18/19 09:39	01/21/19 14:38	1
4,4'-DDT	ND		0.011	0.0043	ug/L		01/18/19 09:39	01/21/19 14:38	1
Aldrin	ND		0.0053	0.0016	ug/L		01/18/19 09:39	01/21/19 14:38	1
alpha-BHC	ND		0.0053	0.0027	ug/L		01/18/19 09:39	01/21/19 14:38	1
beta-BHC	ND		0.011	0.0043	ug/L		01/18/19 09:39	01/21/19 14:38	1
Chlordane (technical)	ND		0.11	0.086	ug/L		01/18/19 09:39	01/21/19 14:38	1
delta-BHC	ND		0.0053	0.0037	ug/L		01/18/19 09:39	01/21/19 14:38	1
Dieldrin	ND		0.0053	0.0021	ug/L		01/18/19 09:39	01/21/19 14:38	1
Endosulfan I	ND		0.0053	0.0032	ug/L		01/18/19 09:39	01/21/19 14:38	1
Endosulfan II	ND		0.0053	0.0021	ug/L		01/18/19 09:39	01/21/19 14:38	1
Endosulfan sulfate	ND		0.011	0.0032	ug/L		01/18/19 09:39	01/21/19 14:38	1
Endrin	ND		0.0053	0.0021	ug/L		01/18/19 09:39	01/21/19 14:38	1
Endrin aldehyde	ND		0.011	0.0021	ug/L		01/18/19 09:39	01/21/19 14:38	1
Endrin ketone	ND		0.011	0.0075	ug/L		01/18/19 09:39	01/21/19 14:38	1
gamma-BHC (Lindane)	ND		0.011	0.0032	ug/L		01/18/19 09:39	01/21/19 14:38	1
Heptachlor	ND		0.011	0.0032	ug/L		01/18/19 09:39	01/21/19 14:38	1
Heptachlor epoxide	ND		0.0053	0.0027	ug/L		01/18/19 09:39	01/21/19 14:38	1
Methoxychlor	ND		0.0053	0.0037	ug/L		01/18/19 09:39	01/21/19 14:38	1
Toxaphene	ND		0.53	0.27	ug/L		01/18/19 09:39	01/21/19 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*67*		*28 - 108*	*01/18/19 09:39*	*01/21/19 14:38*	*1*
Tetrachloro-m-xylene	*35*		*10 - 123*	*01/18/19 09:39*	*01/21/19 14:38*	*1*

Surrogate Summary

Client: Advanced Technology Laboratories
Project/Site: SFPP Norwalk

TestAmerica Job ID: 440-230387-1

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		DCB2	TCX2								
Lab Sample ID	Client Sample ID	(28-108)	(10-123)								
440-230387-1	HTTMDL-01-15	67	35								
LCS 440-523363/2-A	Lab Control Sample	80	68								
LCSD 440-523363/3-A	Lab Control Sample Dup	83	71								
MB 440-523363/1-A	Method Blank	82	71								

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene

Method Summary

Client: Advanced Technology Laboratories
Project/Site: SFPP Norwalk

TestAmerica Job ID: 440-230387-1

Method	Method Description	Protocol	Laboratory
8081A	Organochlorine Pesticides (GC)	SW846	TAL IRV
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL IRV

Protocol References:

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

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Advanced Technology Laboratories
Project/Site: SFPP Norwalk

TestAmerica Job ID: 440-230387-1

Client Sample ID: HTTMDL-01-15
Date Collected: 01/15/19 10:17
Date Received: 01/16/19 09:30

Lab Sample ID: 440-230387-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			935 mL	2 mL	523363	01/18/19 09:39	HCK	TAL IRV
Total/NA	Analysis	8081A		1			523799	01/21/19 14:38	D1D	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 440-523363/1-A
Matrix: Water
Analysis Batch: 523799

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 523363

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0050	0.0040	ug/L		01/18/19 09:39	01/21/19 12:26	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		01/18/19 09:39	01/21/19 12:26	1
4,4'-DDT	ND		0.010	0.0040	ug/L		01/18/19 09:39	01/21/19 12:26	1
Aldrin	ND		0.0050	0.0015	ug/L		01/18/19 09:39	01/21/19 12:26	1
alpha-BHC	ND		0.0050	0.0025	ug/L		01/18/19 09:39	01/21/19 12:26	1
beta-BHC	ND		0.010	0.0040	ug/L		01/18/19 09:39	01/21/19 12:26	1
Chlordane (technical)	ND		0.10	0.080	ug/L		01/18/19 09:39	01/21/19 12:26	1
delta-BHC	ND		0.0050	0.0035	ug/L		01/18/19 09:39	01/21/19 12:26	1
Dieldrin	ND		0.0050	0.0020	ug/L		01/18/19 09:39	01/21/19 12:26	1
Endosulfan I	ND		0.0050	0.0030	ug/L		01/18/19 09:39	01/21/19 12:26	1
Endosulfan II	ND		0.0050	0.0020	ug/L		01/18/19 09:39	01/21/19 12:26	1
Endosulfan sulfate	ND		0.010	0.0030	ug/L		01/18/19 09:39	01/21/19 12:26	1
Endrin	ND		0.0050	0.0020	ug/L		01/18/19 09:39	01/21/19 12:26	1
Endrin aldehyde	ND		0.010	0.0020	ug/L		01/18/19 09:39	01/21/19 12:26	1
Endrin ketone	ND		0.010	0.0070	ug/L		01/18/19 09:39	01/21/19 12:26	1
gamma-BHC (Lindane)	ND		0.010	0.0030	ug/L		01/18/19 09:39	01/21/19 12:26	1
Heptachlor	ND		0.010	0.0030	ug/L		01/18/19 09:39	01/21/19 12:26	1
Heptachlor epoxide	ND		0.0050	0.0025	ug/L		01/18/19 09:39	01/21/19 12:26	1
Methoxychlor	ND		0.0050	0.0035	ug/L		01/18/19 09:39	01/21/19 12:26	1
Toxaphene	ND		0.50	0.25	ug/L		01/18/19 09:39	01/21/19 12:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*82*		*28 - 108*	*01/18/19 09:39*	*01/21/19 12:26*	*1*
Tetrachloro-m-xylene	*71*		*10 - 123*	*01/18/19 09:39*	*01/21/19 12:26*	*1*

Lab Sample ID: LCS 440-523363/2-A
Matrix: Water
Analysis Batch: 523799

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 523363

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	0.250	0.194		ug/L		78	50 - 128
4,4'-DDE	0.250	0.195		ug/L		78	49 - 121
4,4'-DDT	0.250	0.197		ug/L		79	41 - 140
Aldrin	0.250	0.155		ug/L		62	37 - 115
alpha-BHC	0.250	0.165		ug/L		66	44 - 115
beta-BHC	0.250	0.192		ug/L		77	46 - 121
delta-BHC	0.250	0.179		ug/L		72	32 - 129
Dieldrin	0.250	0.185		ug/L		74	39 - 126
Endosulfan I	0.250	0.190		ug/L		76	47 - 115
Endosulfan II	0.250	0.197		ug/L		79	47 - 120
Endosulfan sulfate	0.250	0.178		ug/L		71	48 - 126
Endrin	0.250	0.194		ug/L		78	43 - 127
Endrin aldehyde	0.250	0.181		ug/L		73	43 - 120
Endrin ketone	0.250	0.190		ug/L		76	47 - 123
gamma-BHC (Lindane)	0.250	0.167		ug/L		67	45 - 116
Heptachlor	0.250	0.171		ug/L		69	37 - 115
Heptachlor epoxide	0.250	0.184		ug/L		74	41 - 129
Methoxychlor	0.250	0.195		ug/L		78	44 - 141

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	80		28 - 108
Tetrachloro-m-xylene	68		10 - 123

Lab Sample ID: LCSD 440-523363/3-A
Matrix: Water
Analysis Batch: 523799

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 523363

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD			0.250	0.217		ug/L		87	50 - 128	11	26
4,4'-DDE			0.250	0.210		ug/L		84	49 - 121	8	22
4,4'-DDT			0.250	0.209		ug/L		84	41 - 140	6	20
Aldrin			0.250	0.166		ug/L		66	37 - 115	7	24
alpha-BHC			0.250	0.178		ug/L		71	44 - 115	8	26
beta-BHC			0.250	0.205		ug/L		82	46 - 121	6	27
delta-BHC			0.250	0.192		ug/L		77	32 - 129	7	35
Dieldrin			0.250	0.199		ug/L		80	39 - 126	8	35
Endosulfan I			0.250	0.201		ug/L		80	47 - 115	6	27
Endosulfan II			0.250	0.208		ug/L		83	47 - 120	5	29
Endosulfan sulfate			0.250	0.189		ug/L		76	48 - 126	6	26
Endrin			0.250	0.204		ug/L		82	43 - 127	5	35
Endrin aldehyde			0.250	0.194		ug/L		78	43 - 120	7	35
Endrin ketone			0.250	0.204		ug/L		82	47 - 123	7	27
gamma-BHC (Lindane)			0.250	0.179		ug/L		72	45 - 116	7	28
Heptachlor			0.250	0.183		ug/L		73	37 - 115	7	35
Heptachlor epoxide			0.250	0.197		ug/L		79	41 - 129	7	35
Methoxychlor			0.250	0.204		ug/L		82	44 - 141	5	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	83		28 - 108
Tetrachloro-m-xylene	71		10 - 123

QC Association Summary

Client: Advanced Technology Laboratories
Project/Site: SFPP Norwalk

TestAmerica Job ID: 440-230387-1

GC Semi VOA

Prep Batch: 523363

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-230387-1	HTTMDL-01-15	Total/NA	Water	3510C	
MB 440-523363/1-A	Method Blank	Total/NA	Water	3510C	
LCS 440-523363/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 440-523363/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 523799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-230387-1	HTTMDL-01-15	Total/NA	Water	8081A	523363
MB 440-523363/1-A	Method Blank	Total/NA	Water	8081A	523363
LCS 440-523363/2-A	Lab Control Sample	Total/NA	Water	8081A	523363
LCSD 440-523363/3-A	Lab Control Sample Dup	Total/NA	Water	8081A	523363

Glossary

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

Accreditation/Certification Summary

Client: Advanced Technology Laboratories
Project/Site: SFPP Norwalk

TestAmerica Job ID: 440-230387-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	LA Cty Sanitation Districts	9	10256	06-30-19

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

Analysis Method	Prep Method	Matrix	Analyte
8081A	3510C	Water	4,4'-DDD
8081A	3510C	Water	4,4'-DDE
8081A	3510C	Water	4,4'-DDT
8081A	3510C	Water	Aldrin
8081A	3510C	Water	alpha-BHC
8081A	3510C	Water	beta-BHC
8081A	3510C	Water	Chlordane (technical)
8081A	3510C	Water	delta-BHC
8081A	3510C	Water	Dieldrin
8081A	3510C	Water	Endosulfan I
8081A	3510C	Water	Endosulfan II
8081A	3510C	Water	Endosulfan sulfate
8081A	3510C	Water	Endrin
8081A	3510C	Water	Endrin aldehyde
8081A	3510C	Water	Endrin ketone
8081A	3510C	Water	gamma-BHC (Lindane)
8081A	3510C	Water	Heptachlor
8081A	3510C	Water	Heptachlor epoxide
8081A	3510C	Water	Methoxychlor
8081A	3510C	Water	Toxaphene

California	State Program	9	CA ELAP 2706	06-30-19

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

Analysis Method	Prep Method	Matrix	Analyte

SUB: TEST AMERICA

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Page 1 of 1

Contact us:
Nevada 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F. 702.3072691
California: 11110 Artesia Blvd., Ste B, Cerritos, CA 90703
P 562 219 7435 F 562 219 7436
www.assetlaboratories.com

Client: ASSET Laboratories	Report to: Marlon Cartin	Bill to: Elvira Allegaert
Address: 11110 Artesia Blvd Ste B	Company: Same	Address: Same
Address: Cerritos, CA 90703	Email: marlon@assetlaboratories.com reports.lv@assetlaboratories.com	
Phone: 562.219.7435 Fax:	Address: Same	Email to: elvira@assetlaboratories.com PO#: N33767A
Submitted By: Marlon Cartin		Phone: Fax:
Title:	Phone: Fax:	
Signature: Date: *I hereby authorize ASSET Labs to perform the tests indicated below*	Sampled by: *I attest to the validity and authenticity of this sample I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action*	
Project Name: SFPP Norwalk	Signature	
Project Number:		

EDD Requirement: Excel EDD ☐ Geotracker ☐ Labspec7 ☑ Others ☐ Specify Global ID

QA/QC: RTNE ☐ RWQCB ☐ CalTrans ☐ Level III ☐ LEVEL IV ☐ Regulatory ☐ Specify State

Sampe Receipt Condition (Y / N): 1 Chilled ☐ ☐; 2 Headspace ☐ ☐; 3 Container Intact ☐ ☐; 4 Seal Present ☐ ☐; 5 IR number; 6 Method of Cooling; Sample Temp

Courier
Tracking No

Matrix: Ground ☐ Sediment ☐ Potable ☐ Soil ☐ NPDES ☐ Other Solid ☐ Surface ☐

Analyses Requested: PESTICIDES(SW8081A)

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	PESTICIDES(SW8081A)	Turn Around Time	No of container	Container Type	PRESERVATION	Remarks
1		HTTMDL-01-15	1/15/19	10:17	WW			X	E	2	A	C	
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

440-230387 Chain of Custody

Relinquished by (Signature and Printed Name)	Date / Time	Received by (Signature and Printed Name)	Date / Time
[signature]	1/15/19 1720		
		[signature] TA-IRV	1/16/19 9:30

Turn Around Time (TAT)
- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☑ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3 00 PM.

Special Instruction:
Please analyze for 2,4-DDT (RL=0.1 ppb) and 4,4-DDT (RL=0.05ppb) by EPA 8081

Report format: MDL/PQL "J-flagged". EDD Requirement: "CH2MHILL" LabSpec7.

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

Terms
1 All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report
2 Regular TAT is 5 7 business days, surcharges will apply for rush analysis
Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3 Custom EDD formats will be an additional 3% of the total project price
4 Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price
5 Trip Blanks and Equipment Blanks are billable sample
6 ASSET Laboratories is not responsible for samples collected using incorrect methodology
7 Terms are net 30 Days
8 All reports are submitted in electronic format Please inform ASSET Laboratories if hard copy of report is needed
9 For subcontract analysis TAT and Surcharges will vary

Preservatives: H = HCl; N = HNO3; S = H_2SO_4; C = 4ºC; Z = Zn(AC)2; O = NaOH; T = $Na_2S_2O_3$; Others/Specify

Container Type: T = Tube; V = VOA; P = Pint; J = Jar; B = Tedlar; G = Glass; M = Metal; P = Plastic; C = Can

White = Laboratory Copy   Yellow = Customer's Copy

26/3.0 IR89   CS / tracking #543453379
5 1/16/19

1/16/19

Login Sample Receipt Checklist

Client: Advanced Technology Laboratories

Job Number: 440-230387-1

Login Number: 230387

List Source: TestAmerica Irvine

List Number: 1

Creator: Bonta, Lucia F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Marlon Cartin
Asset Laboratories
3151 West Post Road
Las Vegas NV 89118

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10461723
Sample Receipt Date: 01/17/2019
Client Project #: N033767
Client Sub PO #: N033767
State Cert #: 2929

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Joanne Richardson, your Pace Project Manager.

This report has been reviewed by:

February 01, 2019

Kirsten Hogberg, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
kirsten.hogberg@pacelabs.com

Report Prepared Date:
January 31, 2019

Report of Laboratory Analysis

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on one sample submitted by a representative of Asset Labs. The sample was analyzed for the presence or absence of polychlorobiphenyls (PCBs) using a modified version of USEPA Method 1668A. Reporting limits for the PCB congeners were set to correspond to the statistical MDL concentrations. Reporting limits determined based on the signal to noise ratio were flagged "A" with levels below the calibration range flagged "J" as estimated concentrations.

The dilution level noted on the data tables is being adjusted to allow the correct values to populate the electronic deliverables as well as the data tables. Samples and MDL extracts were analyzed at elevated volumes. That volume is being treated as a 1x dilution for calculation purposes, with larger dilutions being factored from that volume.

The recoveries of the isotopically-labeled PCB internal standards in the sample extract ranged from 28-95%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1668A. Since the quantification of the native congeners was based on isotope dilution and internal standard methodology, the data were automatically corrected for variation in recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of PCB congeners at the reporting limits. This indicates that the sample processing procedures did not significantly contribute to the PCB content determined for the sample material.

Laboratory spike samples were also prepared with the sample batch using reference material that had been fortified with native standards. The results show that the spiked native compounds were recovered at 89-126%, with relative percent differences of 0.0-10.3%. These values were within method limits. Matrix spikes were not extracted with this sample batch.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
A2LA	2926.01	Minnesota - Pet	1240
Alabama	40770	Mississippi	MN00064
Alaska - DW	MN00064	Missouri - DW	10100
Alaska - UST	17-009	Montana	CERT0092
Arizona	AZ0014	Nebraska	NE-OS-18-06
Arkansas - DW	MN00064	Nevada	MN00064
Arkansas - WW	88-0680	New Hampshire	2081
CNMI Saipan	MP0003	New Jersey (NE	MN002
California	2929	New York	11647
Colorado	MN00064	North Carolina	27700
Connecticut	PH-0256	North Carolina -	27700
EPA Region 8+	via MN 027-053	North Carolina -	530
Florida (NELAP	E87605	North Dakota	R-036
Georgia	959	Ohio - DW	41244
Guam	17-001r	Ohio - VAP	CL101
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon - Primar	MN300001
Illinois	200011	Oregon - Secon	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky - DW	90062	South Dakota	NA
Kentucky - WW	90062	Tennessee	TN02818
Louisiana - DE	03086	Texas	T104704192
Louisiana - DW	MN00064	Utah (NELAP)	MN00064
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Massachusetts	M-MN064	West Virginia -	382
Michigan	9909	West Virginia -	9952C
Minnesota	027-053-137	Wisconsin	999407970
Minnesota - De	via MN 027-053	Wyoming - UST	2926.01

REPORT OF LABORATORY ANALYSIS

Appendix A

Sample Management

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

WO# : 10461723

QC Level: RTNE

10461723

Subcontractor:

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414

TEL: (612) 607-1700
FAX: (612) 607-6444
Acct #:

Field Sampler: Nils Orliczky

16-Jan-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				1668c A		
N033767-001E / HTTMDL-01-15	Wastewater	1/15/2019 10:17:00 AM	32OZA	1	001	

EDD Requirement CH2MHILL Labspec 7 edata. Please report "J" flagged down to MDL format.

Please CC Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N33767B Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: 5-day TAT.

Please analyze for Total PCBs by EPA 1668A at 250 pg/L. California sample.

Fedex #: 774211607632

	Date/Time		Date/Time
Relinquished by:	1/16/2019 16:00	**Received by:**	1/17/19 840
Relinquished by:		**Received by:**	

T=4.9

Sample Condition Upon Receipt

Client Name: ASSET Laboratories

Project #: **WO#: 10461723**

PM: JMR **Due Date: 01/31/19**

CLIENT: Asset Labs

Courier: ☒Fed Ex ☐UPS ☐USPS ☐Client ☐Commercial ☐Pace ☐SpeeDee ☐Other:

Tracking Number: 7742 1160 7932

Custody Seal on Cooler/Box Present? ☐Yes ☒No **Seals Intact?** ☐Yes ☒No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐Bubble Wrap ☒Bubble Bags ☐None ☒Other: foam **Temp Blank?** ☐Yes ☒No

Thermometer Used: ☒G87A9170600254 ☐G87A9155100842 **Type of Ice:** ☒Wet ☐Blue ☐None ☐Dry ☐Melted

Cooler Temp Read (°C): 4.9 **Cooler Temp Corrected (°C):** 4.9 **Biological Tissue Frozen?** ☐Yes ☐No ☒N/A

Temp should be above freezing to 6°C **Correction Factor:** true **Date and Initials of Person Examining Contents:** CM 1/17/19

USDA Regulated Soil (☒N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐Yes ☐No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐Yes ☐No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☒Yes	☐No		1.
Chain of Custody Filled Out?	☒Yes	☐No		2.
Chain of Custody Relinquished?	☒Yes	☐No		3.
Sampler Name and/or Signature on COC?	☒Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time?	☒Yes	☐No		5.
Short Hold Time Analysis (<72 hr)?	☐Yes	☒No		6.
Rush Turn Around Time Requested?	☐Yes	☒No		7.
Sufficient Volume?	☒Yes	☐No		8.
Correct Containers Used?	☒Yes	☐No		9.
-Pace Containers Used?	☐Yes	☒No		
Containers Intact?	☒Yes	☐No		10.
Filtered Volume Received for Dissolved Tests?	☐Yes	☐No	☒N/A	11. Note if sediment is visible in the dissolved container
Is sufficient information available to reconcile the samples to the COC? Matrix: WT	☒Yes	☐No		12.
All containers needing acid/base preservation have been checked?	☐Yes	☐No	☒N/A	13. ☐HNO_3 ☐H_2SO_4 ☐NaOH Positive for Res. Chlorine? Y N
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☐Yes	☐No	☒N/A	Sample #
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐Yes	☐No	☒N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐Yes	☐No	☒N/A	14.
Trip Blank Present?	☐Yes	☐No	☒N/A	15.
Trip Blank Custody Seals Present?	☐Yes	☐No	☒N/A	
Pace Trip Blank Lot # (if purchased): N/A				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Joanne Richardson **Date:** 1-17-19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: MD

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interferencepresent

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

REPORT OF LABORATORY ANALYSIS

Appendix B

Sample Analysis Summary

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl Sample Analysis Results

Client - Asset Laboratories

Client's Sample ID	N033767-001E		
Lab Sample ID	10461723001		
Filename	P190125A_12		
Injected By	CVS		
Total Amount Extracted	894 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	01/15/2019 10:17
ICAL ID	P190125A01	Received	01/17/2019 08:40
CCal Filename(s)	P190125A_02	Extracted	01/21/2019 15:05
Method Blank ID	BLANK-67744	Analyzed	01/25/2019 19:59

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.792	2.77	2.0	0.553	28
13C-4-MoCB	3	11.517	2.67	2.0	0.757	38
13C-2,2'-DiCB	4	11.800	1.63	2.0	0.551	28
13C-4,4'-DiCB	15	18.920	1.53	2.0	1.12	56
13C-2,2',6-TrCB	19	15.605	1.15	2.0	0.923	46
13C-3,4,4'-TrCB	37	26.810	1.00	2.0	1.25	62
13C-2,2',6,6'-TeCB	54	19.230	0.86	2.0	0.738	37
13C-3,4,4',5-TeCB	81	34.148	0.78	2.0	1.26	63
13C-3,3',4,4'-TeCB	77	34.736	0.79	2.0	1.19	59
13C-2,2',4,6,6'-PeCB	104	25.433	1.64	2.0	0.761	38
13C-2,3,3',4,4'-PeCB	105	38.454	1.52	2.0	1.02	51
13C-2,3,4,4',5-PeCB	114	37.783	1.61	2.0	1.01	50
13C-2,3',4,4',5-PeCB	118	37.230	1.54	2.0	1.08	54
13C-2,3',4,4',5'-PeCB	123	36.878	1.63	2.0	1.08	54
13C-3,3',4,4',5-PeCB	126	41.740	1.54	2.0	1.11	56
13C-2,2',4,4',6,6'-HxCB	155	31.642	1.29	2.0	0.875	44
13C-HxCB(156/157)	156/157	44.931	1.20	4.0	1.95	49
13C-2,3',4,4',5,5'-HxCB	167	43.707	1.28	2.0	0.965	48
13C-3,3',4,4',5,5'-HxCB	169	48.335	1.28	2.0	1.03	52
13C-2,2',3,4',5,6,6'-HpCB	188	37.750	1.08	2.0	1.01	51
13C-2,3,3',4,4',5,5'-HpCB	189	50.967	1.08	2.0	0.994	50
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.422	0.88	2.0	1.14	57
13C-2,3,3',4,4',5,5',6-OcCB	205	53.661	0.97	2.0	1.28	64
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.471	0.80	2.0	1.74	87
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.450	0.79	2.0	1.36	68
13C-DeCB	209	57.110	0.78	2.0	1.91	95
CleanupStandards						
13C-2,4,4'-TrCB	28	22.339	1.04	2.0	1.57	79
13C-2,3,3',5,5'-PeCB	111	34.798	1.47	2.0	1.72	86
13C-2,2',3,3',5,5',6-HpCB	178	40.986	1.03	2.0	1.84	92
Recovery Standards						
13C-2,5-DiCB	9	14.234	1.50	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.381	0.84	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.890	1.70	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.516	1.27	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.165	0.91	2.0	NA	NA

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID N033767-001E
Lab Sample ID 10461723001
Filename P190125A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L		EMPC ng/L	EML ng/L
1		8.803	2.13 I	---	J	0.0410	0.0235
2		---	---	ND		---	0.0141
3		11.528	2.00 I	---	J	0.0257	0.0188
4		---	---	ND		---	0.0443
5		---	---	ND		---	0.0270
6		---	---	ND		---	0.0416
7		---	---	ND		---	0.0225
8		15.262	0.43 I	---	J	0.0592	0.0445
9		---	---	ND		---	0.0255
10		---	---	ND		---	0.0315
11		18.335	1.35	0.428		---	0.225
12	12/13	---	---	ND		---	0.0569
13	12/13	---	---	ND		---	0.0569
14		---	---	ND		---	0.0907
15		---	---	ND		---	0.0261
16		---	---	ND		---	0.0639
17		---	---	ND		---	0.0578
18	18/30	---	---	ND		---	0.0702
19		---	---	ND		---	0.0308
20	20/28	22.354	1.06	0.0714	J	---	0.0676
21	21/33	---	---	ND		---	0.0704
22		---	---	ND		---	0.0815
23		---	---	ND		---	0.0408
24		---	---	ND		---	0.0209
25		---	---	ND		---	0.0183
26	26/29	---	---	ND		---	0.0506
27		---	---	ND		---	0.0302
28	20/28	22.354	1.06	(0.0714)	J	---	0.0676
29	26/29	---	---	ND		---	0.0506
30	18/30	---	---	ND		---	0.0702
31		22.030	1.14	0.0708	J	---	0.0460
32		---	---	ND		---	0.0244
33	21/33	---	---	ND		---	0.0704
34		---	---	ND		---	0.0268
35		---	---	ND		---	0.0385
36		---	---	ND		---	0.0266
37		---	---	ND		---	0.0894
38		---	---	ND		---	0.0389
39		---	---	ND		---	0.0325
40	40/41/71	---	---	ND		---	0.0629
41	40/41/71	---	---	ND		---	0.0629
42		---	---	ND		---	0.0636
43	43/73	---	---	ND		---	0.0717
44	44/47/65	25.495	0.94 I	---	J	0.0984	0.0597
45	45/51	---	---	ND		---	0.0708
46		---	---	ND		---	0.0243
47	44/47/65	25.495	0.94 I	---	J	(0.0984)	0.0597
48		---	---	ND		---	0.0262

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
B = Less than 10 times higher than method blank level
R = Recovery outside of Method 1668A control limits
Nn = Value obtained from additional analyses

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference
ng's = Nanograms

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID N033767-001E
Lab Sample ID 10461723001
Filename P190125A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L		EMPC ng/L	EML ng/L
49	49/69	---	---	ND		---	0.0947
50	50/53	---	---	ND		---	0.0633
51	45/51	---	---	ND		---	0.0708
52		24.396	0.62 I	---		0.113	0.0559
53	50/53	---	---	ND		---	0.0633
54		---	---	ND		---	0.0531
55		---	---	ND		---	0.0523
56		---	---	ND		---	0.0495
57		---	---	ND		---	0.0235
58		---	---	ND		---	0.0408
59	59/62/75	---	---	ND		---	0.0416
60		---	---	ND		---	0.0548
61	61/70/74/76	29.678	0.70	0.123	J	---	0.0994
62	59/62/75	---	---	ND		---	0.0416
63		---	---	ND		---	0.0342
64		26.887	0.79	0.0458	J	---	0.0334
65	44/47/65	25.495	0.94 I	---	J	(0.0984)	0.0597
66		---	---	ND		---	0.0831
67		---	---	ND		---	0.0369
68		---	---	ND	A	---	0.0217
69	49/69	---	---	ND		---	0.0947
70	61/70/74/76	29.678	0.70	(0.123)	J	---	0.0994
71	40/41/71	---	---	ND		---	0.0629
72		---	---	ND		---	0.0339
73	43/73	---	---	ND		---	0.0717
74	61/70/74/76	29.678	0.70	(0.123)	J	---	0.0994
75	59/62/75	---	---	ND		---	0.0416
76	61/70/74/76	29.678	0.70	(0.123)	J	---	0.0994
77		---	---	ND		---	0.0375
78		---	---	ND		---	0.0390
79		---	---	ND		---	0.0370
80		---	---	ND		---	0.0321
81		---	---	ND		---	0.0214
82		---	---	ND		---	0.0322
83		---	---	ND		---	0.0400
84		29.894	1.18 I	---	J	0.0315	0.0305
85	85/116/117	---	---	ND		---	0.0564
86	86/87/97/108/119/125	---	---	ND		---	0.138
87	86/87/97/108/119/125	---	---	ND		---	0.138
88	88/91	---	---	ND		---	0.0540
89		---	---	ND		---	0.0368
90	90/101/113	31.921	1.69	0.119	J	---	0.0688
91	88/91	---	---	ND		---	0.0540
92		---	---	ND		---	0.0339
93	93/98/100/102	---	---	ND		---	0.122
94		---	---	ND		---	0.0510
95		28.719	1.44	0.103	J	---	0.0387
96		---	---	ND		---	0.0363

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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Tel: 612-607-1700
Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033767-001E
Lab Sample ID	10461723001
Filename	P190125A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L		EMPC ng/L	EML ng/L
97	86/87/97/108/119/125	---	---	ND		---	0.138
98	93/98/100/102	---	---	ND		---	0.122
99		---	---	ND		---	0.0612
100	93/98/100/102	---	---	ND		---	0.122
101	90/101/113	31.921	1.69	(0.119)	J	---	0.0688
102	93/98/100/102	---	---	ND		---	0.122
103		---	---	ND		---	0.0286
104		---	---	ND		---	0.0473
105		---	---	ND		---	0.0624
106		---	---	ND		---	0.0374
107	107/124	---	---	ND		---	0.0768
108	86/87/97/108/119/125	---	---	ND		---	0.138
109		---	---	ND		---	0.0545
110	110/115	34.040	1.62	0.203	J	---	0.0717
111		---	---	ND		---	0.0377
112		---	---	ND		---	0.0391
113	90/101/113	31.921	1.69	(0.119)	J	---	0.0688
114		---	---	ND		---	0.0410
115	110/115	34.040	1.62	(0.203)	J	---	0.0717
116	85/116/117	---	---	ND		---	0.0564
117	85/116/117	---	---	ND		---	0.0564
118		37.230	1.67	0.117		---	0.0485
119	86/87/97/108/119/125	---	---	ND		---	0.138
120		---	---	ND		---	0.0300
121		---	---	ND		---	0.0187
122		---	---	ND		---	0.0379
123		---	---	ND		---	0.0315
124	107/124	---	---	ND		---	0.0768
125	86/87/97/108/119/125	---	---	ND		---	0.138
126		---	---	ND		---	0.0353
127		---	---	ND		---	0.0305
128	128/166	---	---	ND		---	0.0512
129	129/138/163	40.533	1.20	0.275	J	---	0.114
130		---	---	ND		---	0.0605
131		---	---	ND		---	0.0564
132		37.314	0.95 I	---	J	0.0644	0.0601
133		---	---	ND		---	0.0621
134	134/143	---	---	ND		---	0.0412
135	135/151	35.061	0.97 I	---	J	0.0507	0.0447
136		---	---	ND		---	0.0273
137		---	---	ND		---	0.0640
138	129/138/163	40.533	1.20	(0.275)	J	---	0.114
139	139/140	---	---	ND		---	0.0512
140	139/140	---	---	ND		---	0.0512
141		---	---	ND		---	0.0662
142		---	---	ND		---	0.0384
143	134/143	---	---	ND		---	0.0412
144		---	---	ND		---	0.0532

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033767-001E
Lab Sample ID	10461723001
Filename	P190125A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L		EMPC ng/L	EML ng/L
145		---	---	ND		---	0.0531
146		---	---	ND		---	0.0389
147	147/149	36.023	1.30	0.155	J	---	0.0872
148		---	---	ND		---	0.0383
149	147/149	36.023	1.30	(0.155)	J	---	0.0872
150		---	---	ND		---	0.0291
151	135/151	35.061	0.97 I	---	J	(0.0507)	0.0447
152		---	---	ND		---	0.0446
153	153/168	39.225	1.14	0.163	J	---	0.0418
154		---	---	ND		---	0.0350
155		---	---	ND		---	0.0324
156	156/157	---	---	ND		---	0.0712
157	156/157	---	---	ND		---	0.0712
158		---	---	ND		---	0.0498
159		---	---	ND		---	0.0416
160		---	---	ND		---	0.0340
161		---	---	ND		---	0.0196
162		---	---	ND		---	0.0371
163	129/138/163	40.533	1.20	(0.275)	J	---	0.114
164		---	---	ND		---	0.0665
165		---	---	ND		---	0.0425
166	128/166	---	---	ND		---	0.0512
167		---	---	ND		---	0.0223
168	153/168	39.225	1.14	(0.163)	J	---	0.0418
169		---	---	ND		---	0.0448
170		47.714	0.94	0.0986	J	---	0.0363
171	171/173	---	---	ND		---	0.0623
172		---	---	ND		---	0.0285
173	171/173	---	---	ND		---	0.0623
174		42.869	0.85 I	---	J	0.0569	0.0342
175		---	---	ND		---	0.0314
176		---	---	ND		---	0.0414
177		43.338	1.10	0.0458	J	---	0.0388
178		---	---	ND		---	0.0217
179		---	---	ND		---	0.0349
180	180/193	46.390	0.88	0.143	J	---	0.0618
181		---	---	ND		---	0.0474
182		---	---	ND		---	0.0369
183	183/185	---	---	ND		---	0.0530
184		---	---	ND		---	0.0211
185	183/185	---	---	ND		---	0.0530
186		---	---	ND		---	0.0283
187		41.958	0.65 I	---	J	0.0643	0.0261
188		---	---	ND		---	0.0230
189		---	---	ND		---	0.0474
190		---	---	ND		---	0.0435
191		---	---	ND		---	0.0433
192		---	---	ND		---	0.0353

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033767-001E
Lab Sample ID	10461723001
Filename	P190125A_12

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
193	180/193	46.390	0.88	(0.143) J	---	0.0618
194		---	---	ND	---	0.0504
195		---	---	ND	---	0.0347
196		---	---	ND	---	0.0358
197	197/200	---	---	ND	---	0.0576
198	198/199	---	---	ND	---	0.112
199	198/199	---	---	ND	---	0.112
200	197/200	---	---	ND	---	0.0576
201		---	---	ND	---	0.0500
202		---	---	ND	---	0.0353
203		---	---	ND	---	0.0304
204		---	---	ND	---	0.0274
205		---	---	ND	---	0.0492
206		---	---	ND	---	0.0837
207		---	---	ND	---	0.0376
208		---	---	ND	---	0.0537
209		---	---	ND	---	0.0555

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Method 1668A Polychlorobiphenyl
Sample Analysis Results

Client Sample ID	N033767-001E
Lab Sample ID	10461723001
Filename	P190125A_12

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	0.428
Total Trichloro Biphenyls	0.142
Total Tetrachloro Biphenyls	0.169
Total Pentachloro Biphenyls	0.541
Total Hexachloro Biphenyls	0.594
Total Heptachloro Biphenyls	0.287
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
DecachloroBiphenyls	ND
Total PCBs	2.16

ND = Not Detected

REPORT OF LABORATORY ANALYSIS

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID	BLANK-67744		
Filename	P190126A_08		
Injected By	BAL	Matrix	Water
Total Amount Extracted	1030 mL	Extracted	01/21/2019 15:05
ICAL ID	P190126A03	Analyzed	01/26/2019 19:29
CCal Filename(s)	P190126A_02	Dilution	NA

PCB Isomer	IUPAC	RT	Ratio	ng's Added	ng's Found	% Recovery
Labeled Analytes						
13C-2-MoCB	1	8.781	3.41	2.0	1.12	56
13C-4-MoCB	3	11.506	2.89	2.0	1.31	66
13C-2,2'-DiCB	4	11.788	1.61	2.0	1.26	63
13C-4,4'-DiCB	15	18.898	1.57	2.0	1.54	77
13C-2,2',6-TrCB	19	15.560	1.11	2.0	1.70	85
13C-3,4,4'-TrCB	37	26.794	0.97	2.0	1.25	62
13C-2,2',6,6'-TeCB	54	19.198	0.77	2.0	1.07	54
13C-3,4,4',5-TeCB	81	34.117	0.74	2.0	1.25	63
13C-3,3',4,4'-TeCB	77	34.735	0.80	2.0	1.18	59
13C-2,2',4,6,6'-PeCB	104	25.401	1.67	2.0	1.06	53
13C-2,3,3',4,4'-PeCB	105	38.452	1.62	2.0	1.10	55
13C-2,3,4,4',5-PeCB	114	37.765	1.64	2.0	1.05	52
13C-2,3',4,4',5-PeCB	118	37.195	1.56	2.0	1.06	53
13C-2,3',4,4',5'-PeCB	123	36.859	1.53	2.0	1.04	52
13C-3,3',4,4',5-PeCB	126	41.722	1.57	2.0	1.14	57
13C-2,2',4,4',6,6'-HxCB	155	31.642	1.25	2.0	1.14	57
13C-HxCB (156/157)	156/157	44.897	1.28	4.0	2.12	53
13C-2,3',4,4',5,5'-HxCB	167	43.690	1.22	2.0	1.02	51
13C-3,3',4,4',5,5'-HxCB	169	48.318	1.24	2.0	1.15	57
13C-2,2',3,4',5,6,6'-HpCB	188	37.731	1.08	2.0	1.24	62
13C-2,3,3',4,4',5,5'-HpCB	189	50.968	1.08	2.0	1.10	55
13C-2,2',3,3',5,5',6,6'-OcCB	202	43.404	0.88	2.0	1.20	60
13C-2,3,3',4,4',5,5',6-OcCB	205	53.640	0.94	2.0	1.32	66
13C-2,2',3,3',4,4',5,5',6-NoCB	206	55.451	0.74	2.0	1.61	80
13C-2,2',3,3',4,5,5',6,6'-NoCB	208	50.407	0.91	2.0	1.24	66
13C-DeCB	209	57.089	0.67	2.0	1.58	79
Cleanup Standards						
13C-2,4,4'-TrCB	28	22.339	1.20	2.0	1.52	76
13C-2,3,3',5,5'-PeCB	111	34.766	1.68	2.0	1.54	77
13C-2,2',3,3',5,5',6-HpCB	178	40.968	1.13	2.0	1.81	91
Recovery Standards						
13C-2,5-DiCB	9	14.223	1.54	2.0	NA	NA
13C-2,2',5,5'-TeCB	52	24.381	0.79	2.0	NA	NA
13C-2,2',4,5,5'-PeCB	101	31.874	1.67	2.0	NA	NA
13C-2,2',3,4,4',5'-HxCB	138	40.481	1.22	2.0	NA	NA
13C-2,2',3,3',4,4',5,5'-OcCB	194	53.145	0.83	2.0	NA	NA

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-67744
Filename P190126A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
1		---	---	ND	---	0.0204
2		---	---	ND	---	0.0122
3		---	---	ND	---	0.0163
4		---	---	ND	---	0.0384
5		---	---	ND	---	0.0234
6		---	---	ND	---	0.0361
7		---	---	ND	---	0.0195
8		---	---	ND	---	0.0386
9		---	---	ND	---	0.0221
10		---	---	ND	---	0.0273
11		---	---	ND	---	0.195
12	12/13	---	---	ND	---	0.0493
13	12/13	---	---	ND	---	0.0493
14		---	---	ND	---	0.0786
15		---	---	ND	---	0.0226
16		---	---	ND	---	0.0554
17		---	---	ND	---	0.0501
18	18/30	---	---	ND	---	0.0609
19		---	---	ND	---	0.0267
20	20/28	---	---	ND	---	0.0586
21	21/33	---	---	ND	---	0.0610
22		---	---	ND	---	0.0707
23		---	---	ND	---	0.0354
24		---	---	ND	---	0.0181
25		---	---	ND	---	0.0159
26	26/29	---	---	ND	---	0.0438
27		---	---	ND	---	0.0262
28	20/28	---	---	ND	---	0.0586
29	26/29	---	---	ND	---	0.0438
30	18/30	---	---	ND	---	0.0609
31		---	---	ND	---	0.0398
32		---	---	ND	---	0.0211
33	21/33	---	---	ND	---	0.0610
34		---	---	ND	---	0.0233
35		---	---	ND	---	0.0333
36		---	---	ND	---	0.0231
37		---	---	ND	---	0.0775
38		---	---	ND	---	0.0337
39		---	---	ND	---	0.0282
40	40/41/71	---	---	ND	---	0.0545
41	40/41/71	---	---	ND	---	0.0545
42		---	---	ND	---	0.0552
43	43/73	---	---	ND	---	0.0621
44	44/47/65	---	---	ND	---	0.0518
45	45/51	---	---	ND	---	0.0614

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-67744
Filename P190126A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
46		---	---	ND	---	0.0210
47	44/47/65	---	---	ND	---	0.0518
48		---	---	ND	---	0.0227
49	49/69	---	---	ND	---	0.0821
50	50/53	---	---	ND	---	0.0549
51	45/51	---	---	ND	---	0.0614
52		---	---	ND	---	0.0485
53	50/53	---	---	ND	---	0.0549
54		---	---	ND	---	0.0460
55		---	---	ND	---	0.0454
56		---	---	ND	---	0.0429
57		---	---	ND	---	0.0204
58		---	---	ND	---	0.0354
59	59/62/75	---	---	ND	---	0.0361
60		---	---	ND	---	0.0475
61	61/70/74/76	---	---	ND	---	0.0862
62	59/62/75	---	---	ND	---	0.0361
63		---	---	ND	---	0.0297
64		---	---	ND	---	0.0290
65	44/47/65	---	---	ND	---	0.0518
66		---	---	ND	---	0.0720
67		---	---	ND	---	0.0320
68		---	---	ND	---	0.0175
69	49/69	---	---	ND	---	0.0821
70	61/70/74/76	---	---	ND	---	0.0862
71	40/41/71	---	---	ND	---	0.0545
72		---	---	ND	---	0.0294
73	43/73	---	---	ND	---	0.0621
74	61/70/74/76	---	---	ND	---	0.0862
75	59/62/75	---	---	ND	---	0.0361
76	61/70/74/76	---	---	ND	---	0.0862
77		---	---	ND	---	0.0325
78		---	---	ND	---	0.0338
79		---	---	ND	---	0.0321
80		---	---	ND	---	0.0278
81		---	---	ND	---	0.0185
82		---	---	ND	---	0.0279
83		---	---	ND	---	0.0347
84		---	---	ND	---	0.0265
85	85/116/117	---	---	ND	---	0.0489
86	86/87/97/108/119/125	---	---	ND	---	0.119
87	86/87/97/108/119/125	---	---	ND	---	0.119
88	88/91	---	---	ND	---	0.0468
89		---	---	ND	---	0.0319
90	90/101/113	---	---	ND	---	0.0596

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ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

REPORT OF LABORATORY ANALYSIS

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Fax: 612- 607-6444

Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-67744
Filename P190126A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
91	88/91	---	---	ND	---	0.0468
92		---	---	ND	---	0.0294
93	93/98/100/102	---	---	ND	---	0.106
94		---	---	ND	---	0.0442
95		---	---	ND	---	0.0335
96		---	---	ND	---	0.0315
97	86/87/97/108/119/125	---	---	ND	---	0.119
98	93/98/100/102	---	---	ND	---	0.106
99		---	---	ND	---	0.0530
100	93/98/100/102	---	---	ND	---	0.106
101	90/101/113	---	---	ND	---	0.0596
102	93/98/100/102	---	---	ND	---	0.106
103		---	---	ND	---	0.0248
104		---	---	ND	---	0.0410
105		---	---	ND	---	0.0541
106		---	---	ND	---	0.0324
107	107/124	---	---	ND	---	0.0666
108	86/87/97/108/119/125	---	---	ND	---	0.119
109		---	---	ND	---	0.0472
110	110/115	---	---	ND	---	0.0621
111		---	---	ND	---	0.0327
112		---	---	ND	---	0.0339
113	90/101/113	---	---	ND	---	0.0596
114		---	---	ND	---	0.0356
115	110/115	---	---	ND	---	0.0621
116	85/116/117	---	---	ND	---	0.0489
117	85/116/117	---	---	ND	---	0.0489
118		---	---	ND	---	0.0421
119	86/87/97/108/119/125	---	---	ND	---	0.119
120		---	---	ND	---	0.0260
121		---	---	ND	---	0.0162
122		---	---	ND	---	0.0329
123		---	---	ND	---	0.0273
124	107/124	---	---	ND	---	0.0666
125	86/87/97/108/119/125	---	---	ND	---	0.119
126		---	---	ND	---	0.0306
127		---	---	ND	---	0.0265
128	128/166	---	---	ND	---	0.0444
129	129/138/163	---	---	ND	---	0.0989
130		---	---	ND	---	0.0524
131		---	---	ND	---	0.0489
132		---	---	ND	---	0.0521
133		---	---	ND	---	0.0538
134	134/143	---	---	ND	---	0.0357
135	135/151	---	---	ND	---	0.0388

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
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A = Limit of Detection based on signal to noise
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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-67744
Filename P190126A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
136		---	---	ND	---	0.0237
137		---	---	ND	---	0.0555
138	129/138/163	---	---	ND	---	0.0989
139	139/140	---	---	ND	---	0.0444
140	139/140	---	---	ND	---	0.0444
141		---	---	ND	---	0.0574
142		---	---	ND	---	0.0333
143	134/143	---	---	ND	---	0.0357
144		---	---	ND	---	0.0461
145		---	---	ND	---	0.0460
146		---	---	ND	---	0.0337
147	147/149	---	---	ND	---	0.0756
148		---	---	ND	---	0.0332
149	147/149	---	---	ND	---	0.0756
150		---	---	ND	---	0.0252
151	135/151	---	---	ND	---	0.0388
152		---	---	ND	---	0.0387
153	153/168	---	---	ND	---	0.0363
154		---	---	ND	---	0.0303
155		---	---	ND	---	0.0281
156	156/157	---	---	ND	---	0.0618
157	156/157	---	---	ND	---	0.0618
158		---	---	ND	---	0.0431
159		---	---	ND	---	0.0361
160		---	---	ND	---	0.0295
161		---	---	ND	---	0.0170
162		---	---	ND	---	0.0322
163	129/138/163	---	---	ND	---	0.0989
164		---	---	ND	---	0.0577
165		---	---	ND	---	0.0368
166	128/166	---	---	ND	---	0.0444
167		---	---	ND	---	0.0193
168	153/168	---	---	ND	---	0.0363
169		---	---	ND	---	0.0389
170		---	---	ND	---	0.0315
171	171/173	---	---	ND	---	0.0540
172		---	---	ND	---	0.0247
173	171/173	---	---	ND	---	0.0540
174		---	---	ND	---	0.0297
175		---	---	ND	---	0.0272
176		---	---	ND	---	0.0359
177		---	---	ND	---	0.0336
178		---	---	ND	---	0.0188
179		---	---	ND	---	0.0302
180	180/193	---	---	ND	---	0.0536

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Lab Sample ID BLANK-67744
Filename P190126A_08

IUPAC	Co-elutions	RT	Ratio	Concentration ng/L	EMPC ng/L	EML ng/L
181		---	---	ND	---	0.0411
182		---	---	ND	---	0.0320
183	183/185	---	---	ND	---	0.0460
184		---	---	ND	---	0.0183
185	183/185	---	---	ND	---	0.0460
186		---	---	ND	---	0.0245
187		---	---	ND	---	0.0226
188		---	---	ND	---	0.0200
189		---	---	ND	---	0.0411
190		---	---	ND	---	0.0377
191		---	---	ND	---	0.0375
192		---	---	ND	---	0.0306
193	180/193	---	---	ND	---	0.0536
194		---	---	ND	---	0.0437
195		---	---	ND	---	0.0301
196		---	---	ND	---	0.0310
197	197/200	---	---	ND	---	0.0499
198	198/199	---	---	ND	---	0.0969
199	198/199	---	---	ND	---	0.0969
200	197/200	---	---	ND	---	0.0499
201		---	---	ND	---	0.0433
202		---	---	ND	---	0.0306
203		---	---	ND	---	0.0264
204		---	---	ND	---	0.0238
205		---	---	ND	---	0.0427
206		---	---	ND	---	0.0725
207		---	---	ND	---	0.0326
208		---	---	ND	---	0.0465
209		---	---	ND	---	0.0481

Conc = Concentration
EML =Method Specified Reporting Limit (1668A)
EMPC = Estimated Maximum Possible Concentration
A = Limit of Detection based on signal to noise
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R = Recovery outside of Method 1668A control limits
ng/L = Nanograms per liter

ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
X = Outside QC Limits
RT = Retention Time
I = Interference

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Method 1668A Polychlorobiphenyl
Blank Analysis Results

Client Sample ID	CBLKPQ
Lab Sample ID	BLANK-67744
Filename	P190126A_08

Congener Group	Concentration ng/L
Total Monochloro Biphenyls	ND
Total Dichloro Biphenyls	ND
Total Trichloro Biphenyls	ND
Total Tetrachloro Biphenyls	ND
Total Pentachloro Biphenyls	ND
Total Hexachloro Biphenyls	ND
Total Heptachloro Biphenyls	ND
Total Octachloro Biphenyls	ND
Total Nonachloro Biphenyls	ND
DecachloroBiphenyls	ND
Total PCBs	ND

ND = Not Detected

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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCS-67745		
Filename	P190125B_05	Matrix	Water (Non Potable)
Total Amount Extracted	1020 mL	Dilution	NA
ICAL ID	P190125B01	Extracted	01/21/2019 15:05
CCal Filename(s)	P190125B_02	Analyzed	01/26/2019 02:05
Method Blank ID	BLANK-67744	Injected By	CVS

	Native Analytes			Labeled Analytes		
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**
1	1.0	1.03	103	2.0	1.21	60
3	1.0	0.955	95	2.0	1.43	71
4	1.0	1.17	117	2.0	1.29	64
15	1.0	0.948	95	2.0	1.62	81
19	1.0	0.975	97	2.0	1.63	81
37	1.0	0.942	94	2.0	1.40	70
54	1.0	0.973	97	2.0	1.21	60
81	1.0	0.906	91	2.0	1.49	75
77	1.0	0.929	93	2.0	1.46	73
104	1.0	1.03	103	2.0	1.12	56
105	1.0	0.923	92	2.0	1.34	67
114	1.0	0.912	91	2.0	1.30	65
118	1.0	0.922	92	2.0	1.32	66
123	1.0	0.938	94	2.0	1.29	65
126	1.0	0.947	95	2.0	1.40	70
155	1.0	1.02	102	2.0	1.24	62
156/157	2.0	1.87	93	4.0	2.58	64
167	1.0	0.917	92	2.0	1.30	65
169	1.0	0.937	94	2.0	1.39	70
188	1.0	1.03	103	2.0	1.30	65
189	1.0	0.972	97	2.0	1.29	64
202	1.0	0.981	98	2.0	1.43	71
205	1.0	0.950	95	2.0	1.64	82
206	1.0	0.950	95	2.0	2.10	105
208	1.0	0.971	97	2.0	1.59	80
209	1.0	0.939	94	2.0	2.17	109

R = Recovery outside of method 1668A control limits
Nn = Result obtained from alternate analysis
ND = Not Detected
NA = Not Applicable
NC = Not Calculated
* = See Discussion
ng = Nanograms
I = Interference

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Method 1668A Polychlorobiphenyls
Laboratory Control Spike Analysis Results

Lab Sample ID	LCSD-67746		
Filename	P190125B_06	Matrix	Water (Non Potable)
Total Amount Extracted	1020 mL	Dilution	NA
ICAL ID	P190125B01	Extracted	01/21/2019 15:05
CCal Filename(s)	P190125B_02	Analyzed	01/26/2019 03:06
Method Blank ID	BLANK-67744	Injected By	CVS

	Native Analytes			Labeled Analytes		
PCB Isomer	**Spiked (ng)**	**Found (ng)**	**% Recovery**	**Spiked (ng)**	**Found (ng)**	**% Recovery**
1	1.0	1.09	109	2.0	1.05	52
3	1.0	0.936	94	2.0	1.28	64
4	1.0	1.26	126	2.0	1.06	53
15	1.0	0.959	96	2.0	1.32	66
19	1.0	0.953	95	2.0	1.36	68
37	1.0	0.948	95	2.0	1.14	57
54	1.0	0.969	97	2.0	1.04	52
81	1.0	0.955	96	2.0	1.23	62
77	1.0	0.886	89	2.0	1.22	61
104	1.0	1.02	102	2.0	0.929	46
105	1.0	0.934	93	2.0	1.08	54
114	1.0	0.960	96	2.0	1.03	52
118	1.0	1.01	101	2.0	1.04	52
123	1.0	0.969	97	2.0	1.06	53
126	1.0	0.897	90	2.0	1.17	58
155	1.0	1.01	101	2.0	0.959	48
156/157	2.0	1.78	89	4.0	2.11	53
167	1.0	1.02	102	2.0	0.988	49
169	1.0	0.894	89	2.0	1.16	58
188	1.0	0.991	99	2.0	1.01	51
189	1.0	0.898	90	2.0	1.03	51
202	1.0	1.03	103	2.0	1.13	57
205	1.0	0.952	95	2.0	1.33	67
206	1.0	0.939	94	2.0	1.63	81
208	1.0	1.02	102	2.0	1.26	63
209	1.0	0.942	94	2.0	1.77	89

R = Recovery outside of method 1668A control limits
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Method 1668A

Spike Recovery Relative Percent Difference (RPD) Results

Client	Asset Laboratories		
Spike 1 ID	LCS-67745	Spike 2 ID	LCSD-67746
Spike 1 Filename	P190125B_05	Spike 2 Filename	P190125B_06

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	103	109	5.7
4-MoCB	3	95	94	1.1
2,2'-DiCB	4	117	126	7.4
4,4'-DiCB	15	95	96	1.0
2,2',6-TrCB	19	97	95	2.1
3,4,4'-TrCB	37	94	95	1.1
2,2',6,6'-TeCB	54	97	97	0.0
3,3',4,4'-TeCB	77	93	89	4.4
3,4,4',5-TeCB	81	91	96	5.3
2,2',4,6,6'-PeCB	104	103	102	1.0
2,3,3',4,4'-PeCB	105	92	93	1.1
2,3,4,4',5-PeCB	114	91	96	5.3
2,3',4,4',5-PeCB	118	92	101	9.3
2,3',4,4',5'-PeCB	123	94	97	3.1
3,3',4,4',5-PeCB	126	95	90	5.4
2,2',4,4',6,6'-HxCB	155	102	101	1.0
(156/157)	156/157	93	89	4.4
2,3',4,4',5,5'-HxCB	167	92	102	10.3
3,3',4,4',5,5'-HxCB	169	94	89	5.5
2,2',3,4',5,6,6'-HpCB	188	103	99	4.0
2,3,3',4,4',5,5'-HpCB	189	97	90	7.5
2,2',3,3',5,5',6,6'-OcCB	202	98	103	5.0
2,3,3',4,4',5,5',6-OcCB	205	95	95	0.0
2,2',3,3',4,4',5,5',6-NoCB	206	95	94	1.1
2,2',3,3',4,5,5',6,6'-NoCB	208	97	102	5.0
Decachlorobiphenyl	209	94	94	0.0

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Attachment D
Data Quality Assurance/ Quality Control Evaluation

Data Quality Assurance/Quality Control

Data quality was evaluated by examining the holding times, laboratory method blanks, surrogate percent recoveries, laboratory control sample/laboratory control sample duplicates (LCS/LCSD) and matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPDs). Data quality review results for each analysis are outlined in the following subsections.

Analytical Data

The data quality evaluation report covers three normal water samples. Samples were collected on July 11, 2018, November 30, 2018 and January 15, 2019. Analyses were performed by Asset Laboratories in Las Vegas, Nevada, Pace Analytical in Minneapolis, Minnesota, and TestAmerica in Irvine, California. The sample results were reported as three sample delivery groups:

Sample Delivery Groups
N031181
N033183
N033767

Five methods were used to analyze the environmental samples. Samples were collected and submitted directly to the Asset Laboratories for analysis. Asset Laboratories was responsible for shipment of samples to the other laboratories. Samples were analyzed for the following analytes/method:

Parameter	Method	Laboratory
Total suspended solids	SM2540D	Asset
Metals	E200.8	Asset
Polychlorinated Biphenyls (PCB) Congeners	E1668	Pace
Pesticides	SW8081A	TestAmerica
Polynuclear Aromatic Hydrocarbons	SW8270C-SIM	Asset

Data validation flags were assigned using guidance from the EPA Contract Laboratory National Functional Guidelines for Organic Superfund Methods Data Review (EPA, 2017) and EPA Contract Laboratory National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA, 2017). Multiple flags are routinely applied to specific sample method/ matrix/ analyte combinations, but there will be only one final flag. A final flag is applied to the data and is the most conservative of the applied data validation flags. The final flag also includes blank sample impacts.

The data validation flags are as follows:

- J = Analyte was present, but the reported value may not be accurate or precise (estimated). The result was estimated because it was less than the referenced reporting limit, but greater than the method detection limit, or because a QC exceedance occurred.
- R = Data were unusable because of deficiencies in the ability to analyze the sample and meet QC criteria.
- U = Analyte was not detected at the specified detection limit.
- UJ = Analyte was not detected, and the specified detection limit may not be accurate or precise (estimated).

Findings

The overall summaries of the data validation findings are contained in the following subsections.

Holding Times

All holding time criteria were met.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination that would affect the sample results with the following exceptions:

Sixty-three PCB congeners were detected in the method blank associated with the July 2018 sample for method E1668. Associated sample results are possibly false positives or biased high in sample HTTMDL-07-11.

Surrogates

All surrogate recovery criteria were met with one exception.

Surrogate recovery was less than the lower control limit in sample HTTMDL-07-11 for Method SW8270C-SIM, indicating associated sample results are possibly biased low. All associated sample results are not detected and are qualified as estimated and flagged “UJ”.

Internal Standards

All internal standard criteria were met.

Laboratory Control Samples

LCS/LCSDs were analyzed as required. All accuracy and precision criteria were met.

Matrix Spikes/Matrix Spike Duplicates

The results of MS/MSD analyses provide information about the possible influence of the matrix on either accuracy or precision of the measurements. There were no MS/MSD recovery or RPD exceedances that would affect the sample results.

Chain-of-Custody

Each sample was documented in a completed COC and received at the laboratory in good condition.

Overall Assessment

An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results are considered usable taking into consideration possible biases as described above.