



July 20, 2018

Project No. 30401358

**Ms. Maureen Hatfield**  
MC-127  
VCP-CA Section, Team 1, Remediation Division  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, Texas 78711-3087

**SUBJECT: CORRECTION ACTION MONITORING REPORT: 2018 FIRST SEMI-ANNUAL EVENT  
UNION PACIFIC RAILROAD HOUSTON WOOD PRESERVING WORKS, HOUSTON, TEXAS  
4910 LIBERTY ROAD, HOUSTON, HARRIS COUNTY, TEXAS  
TCEQ SWR NO. 31547; TCEQ PERMIT/COMPLIANCE PLAN NO. 50343  
EPA ID NO. TXD000820266  
CUSTOMER NO. CN600131098; REGULATED ENTITY NO. RN100674613**

Dear Ms. Hatfield:

Golder Associates Inc (Golder), formerly Pastor, Behling & Wheeler, LLC (PBW), on behalf of Union Pacific Railroad Company (UPRR), is pleased to provide the Corrective Action Monitoring Report: 2018 First Semi-Annual Event for above referenced site for your review. The report was prepared in accordance with Section VII.C.2 of Compliance Plan No. CP-50343, which was issued in conjunction with Post-Closure Care Permit No. HW-50343, both dated June 10, 2005. In addition to the original copy of the report, a compact disk (CD) with an electronic version of the report is also attached for your files.

If you have any questions or need additional information, please feel free to call me at (512) 671-3434 or email [eric\\_matzner@golder.com](mailto:eric_matzner@golder.com); or Mr. Kevin Peterburs of UPRR at (414) 267-4164 and email [kjpeterb@up.com](mailto:kjpeterb@up.com).

Sincerely

**Golder Associates Inc.**

Eric C. Matzner, P.G.  
Associate Hydrogeologist

CC: Waste Program Manager, TCEQ Region 12, Houston  
Mr. Kevin Peterburs, P.G., UPRR – Milwaukee, WI

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TCEQ Remediation Division



# Corrective Action Monitoring Report 2018 First Semi-Annual Event

*Former Houston Wood Preserving Works  
4910 Liberty Road Houston, Texas*

Submitted to:

**Mr. Kevin Peterburs**

Union Pacific Railroad Company  
4823 N 119th Street  
Milwaukee, WI 53225

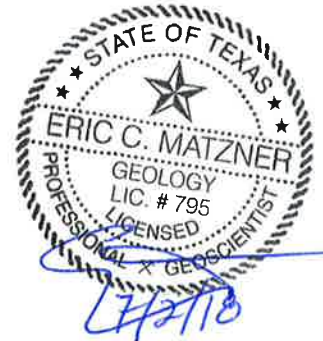
Submitted by:

**Golder Associates Inc.**

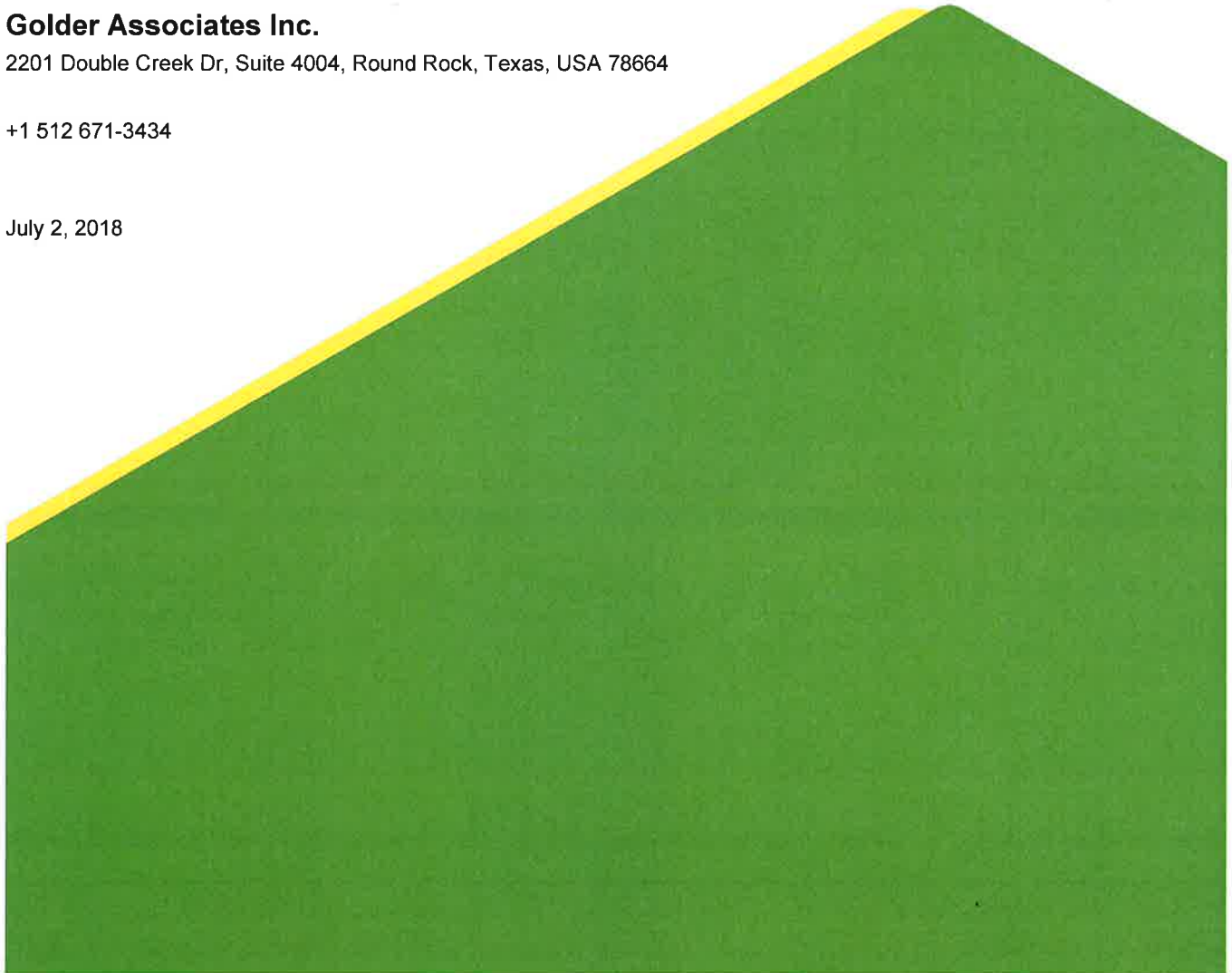
2201 Double Creek Dr, Suite 4004, Round Rock, Texas, USA 78664

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July 2, 2018

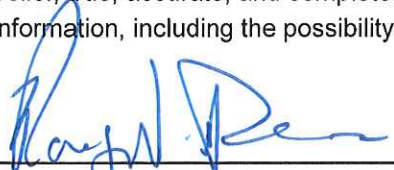


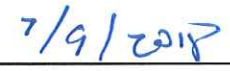
Texas Geosciences Firm No. 50248

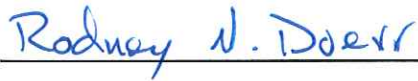



## Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to 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.

  
\_\_\_\_\_  
Signature

  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Name

  
\_\_\_\_\_  
Title

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## 1.0 EXECUTIVE SUMMARY

This semi-annual report presents a summary and evaluation of the Corrective Action Groundwater Monitoring for January through June 2018 for the Closed Surface Impoundment (Solid Waste Management Unit (SWMU) 1) at the former Wood Preserving Works facility (the Site) located in Houston, Texas. The groundwater monitoring activities for this period were performed by Golder Associates Inc. (Golder), formerly Pastor, Behling & Wheeler, LLC (PBW), on behalf of Union Pacific Railroad (UPRR) in January 2018.

The two uppermost groundwater bearing units, the A-Transmissive Zone (A-TZ) and the B-Transmissive Zone (B-TZ), were monitored during this period. Groundwater elevation data collected during the January 2018 sampling event show groundwater flows to the northwest in the A-TZ with a hydraulic gradient across SWMU 1 of approximately 0.05 ft/ft. Groundwater flow during the previous event (2017 second semi-annual monitoring event) in the A-TZ was observed to have a similar hydraulic gradient across SWMU 1.

Groundwater elevation data collected in the B-TZ show groundwater flow to the southwest across SWMU 1 with a hydraulic gradient of approximately 0.01 ft/ft. Groundwater flow during the previous event (2017 second semi-annual monitoring event) was observed to have a similar hydraulic gradient across SWMU 1.

Analytical results from the January 2018 sampling event were compared to Texas Commission on Environmental Quality Texas Risk Reduction Program Protective Concentration Limits or Groundwater Protection Standards (GWPs), as designated in Section IV.D of the Compliance Plan, dated June 10, 2005. Constituent concentrations were below their respective PCLs for the 24th consecutive semi-annual monitoring event (12 years). Monitoring wells in both the A-TZ and B-TZ are considered to be compliant for this monitoring period.

## 2.0 INTRODUCTION

This semi-annual report presents a summary and evaluation of groundwater monitoring data collected during the 2018 first semi-annual monitoring period (January through June) at the Union Pacific Railroad (UPRR) former Houston Wood Preserving Works facility (the Site) located at 4910 Liberty Road in Houston, Texas (Figure 1). Semi-annual groundwater monitoring is required for the Site as a condition of the Texas Commission on Environmental Quality (TCEQ) Hazardous Waste Permit No. 50343 and associated Compliance Plan (CP) No. 50343, both renewed and issued on June 10, 2005. Groundwater monitoring at the Site is performed to monitor groundwater quality beneath the Closed Surface Impoundment Unit No. 001 (Solid Waste Management Unit (SWMU) 1).

On behalf of UPRR, Golder Associates Inc (Golder), formerly Pastor, Behling & Wheeler, LLC (PBW), conducted groundwater monitoring activities at SWMU 1 on January 3-4, 2018. Groundwater monitoring activities included sampling and gauging the background and point of compliance (POC) wells and piezometers associated with SWMU 1. The sampling event, analytical data, and data evaluation provided in this report fulfill the semi-annual corrective action reporting requirements for the first half of 2018 as described in the CP, Section VII.C.2. This section requires the following reporting elements:

Semi-Annual Corrective Action Report Requirements	Report Section, Table(s) and/or Figure(s)
A narrative summary of the evaluations made in accordance with CP Sections V, VI, and VII for the preceding six-month period. These periods shall be January 1 through June 30 and July 1 through December 31 (VII.C.2.a.)	3.0
Summary of Methods utilized for management of recovered/purged water (VII.C.2.b.)	3.2
An updated table and map of the monitoring and corrective action system wells (VII.C.2.c.)	Section 3.1.1 and Figure 2
The results of the chemical analyses, submitted in a tabulated format in a form acceptable to the Executive Director, which clearly indicates each parameter that exceeds the Groundwater Protection Standard (GWPS). Copies of the original laboratory report for chemical analyses showing detection limits and quality control and quality assurance data shall be provided if requested by the Executive Director (VII.C.2.d.)	Tables 1 & 2 Appendix C
Tabulation of the water level elevations (relative to mean sea level), depth to water measurements, and total depth of well measurements collected since the data that was submitted in the previous semiannual report (VII.C.2.e.)	Table 4
Potentiometric surface maps showing the elevation of the water table at the time of sampling and direction of groundwater flow gradients (VII.C.2.f.)	Figures 3 & 4

<p align="center"><b>Semi-Annual Corrective Action Report Requirements (cont'd)</b></p>	<p align="center"><b>Report Section, Table(s) and/or Figure(s)</b></p>
<p>Quarterly tabulations of quantities of recovered groundwater and NAPLs, and graphs of monthly recorded flow rates versus time for the recovery wells during each period. A narrative summary describing and evaluating the NAPL recovery program shall also be included (VII.C.2.h.)</p>	<p align="center">Not Applicable</p>
<p>Tabulation of the total contaminant mass recovered from each recovery system for each reporting period, if such a system is installed (VII.C.2.i.)</p>	<p align="center">Not Applicable</p>
<p>Tabulation of the data evaluation results pursuant to Section VI.D and status of each well listed on CP Table V with regard to compliance with the corrective action objectives and compliance with the GWPSs (VII.C.2.j.)</p>	<p align="center">Table 5</p>
<p>Maps of the contaminated area depicting concentrations of constituents listed in Table IV and any newly detected Table III constituents as isopleths contours or discrete concentrations if isopleths contours cannot be inferred (VII.C.2.k.)</p>	<p align="center">Not Applicable</p>
<p>Maps indicating the extent and thickness of the LNAPLs and DNAPLs, if detected (VII.C.2.l.)</p>	<p align="center">Not Detected</p>
<p>An updated schedule summary as required by Section X (VII.C.2.m.)</p>	<p align="center">Appendix D</p>
<p>Summary of any changes made to the monitoring/corrective action program and a summary of recovery well inspections, repairs, and any operational difficulties (VII.C.2.n.)</p>	<p align="center">None</p>
<p>A table of the modifications and amendments made to this Compliance Plan with their corresponding approval dates by the executive director or the Commission and a brief description of each action (VII.C.2.o.)</p>	<p align="center">None</p>
<p>Corrective Measures Implementation (CMI) Report to be submitted in accordance with Section VIII.F, if necessary (VII.C.2.p.)</p>	<p align="center">Not Applicable</p>
<p>Tabulation of well casing elevations in accordance with Attachment B No. 16 (VII.C.2.q.)</p>	<p align="center">Table 4</p>
<p>Recommendation for any changes (VII.C.2.r.)</p>	<p align="center">None</p>
<p>Certification and well installation diagram for any new well installation or replacement and certification for any well plugging and abandonment (VII.C.2.s.)</p>	<p align="center">Not Applicable</p>
<p>A summary of any activity within an area subject to institutional control (VII.C.2.t.)</p>	<p align="center">None</p>
<p>Any other items requested by the Executive Director (VII.C.2.u.)</p>	<p align="center">None</p>



As of June 2018, a recovery system had not been installed and is not necessary for the regulated unit. Therefore, Provisions 8, 9, and 10 that relate to recovery wells or recovery system, are not applicable for this reporting period.

Responses to each of the semi-annual report provisions required by CP Section VII.C.2 are provided in Section 3.0.

### 3.0 2018 FIRST SEMI-ANNUAL GROUNDWATER MONITORING EVENT

A discussion of each of the semi-annual report provisions required by CP Section VII.C.2 is presented below by reference number to the list of provisions in Section 2.0.

#### 3.1 Narrative Summary of First Semi-Annual Monitoring Activities

The CP requires an evaluation of the Corrective Action Program (Section V) and Groundwater Monitoring Program summarizing the overall effectiveness of the Corrective Action Program (Section VI). This narrative summary includes provisions for response and reporting requirements as detailed in the CP Section VII, as discussed below.

##### 3.1.1 Corrective Action Program

Groundwater samples were collected from the Background and POC wells (as detailed in CP Table V, which is provided in Appendix A) to assess potentially affected groundwater quality in the A-Transmissive Zone (A-TZ) and the B-Transmissive Zone (B-TZ). These water-bearing zones are defined as:

- A-TZ refers to the first sand unit encountered at approximately 13 feet below ground surface (bgs) and averages 7 feet in thickness; and
- B-TZ refers to the second sand unit encountered at approximately 30 feet bgs and averages 9 feet in thickness.

The definitions of the A-TZ and B-TZ are consistent with the Uppermost Transmissive Zone (UTZ) and Second Transmissive Zone (STZ), respectively, as defined in CP Provision I.A.

The following monitoring wells were sampled during this event (Figure 2):

- A-TZ POC wells: MW-01A, MW-02, MW-07, MW-10A, and MW-11A;
- A-TZ Background well: MW-08;
- B-TZ POC wells: MW-10B, MW-11B, and P-10; and
- B-TZ Background well: P-12.

##### 3.1.2 Groundwater Monitoring

Golder performed quarterly inspections of SWMU 1 in January and May 2018 and conducted semi-annual groundwater sampling activities on January 3-4, 2018. Groundwater sampling was performed using procedures outlined in a U.S. Environmental Protection Agency (EPA) document titled Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures (EPA/540/S-95/504) published in April 1996 and approved in the CP application. Groundwater samples were analyzed for the Detected Hazardous and Solid Waste Constituents listed in the CP, Table III (Appendix A).

Monitoring wells are equipped with dedicated polytetrafluoroethylene (PTFE) tubing for groundwater sampling. A peristaltic pump was used to purge and collect the groundwater samples. An approximate one-foot section of disposable silicon tubing was placed around the pump head and attached to the PTFE tubing for proper operation of the pump. Groundwater was pumped from the screened interval of each well at a flow rate of less than 0.5 L/min using a flow-through cell. Field parameters including temperature, pH, specific conductivity, dissolved oxygen, and turbidity were measured during purging and sampling activities. When field parameters had

stabilized to the EPA-specified criteria, a sample was then collected for analysis. The samples were also collected at a flow rate of less than 0.5 L/min. Recorded field parameters are summarized in Appendix B.

For each well, sample bottles were filled directly from the pumping apparatus described above, and were sealed and packed in coolers with sufficient ice to maintain a sample temperature of approximately 4°C. The sample coolers were delivered to ALS Environmental in Houston, Texas for laboratory analysis. Chain-of-Custody (COC) forms were completed and kept with their respective samples. Copies of the analytical data and COCs are included in Appendix C. Groundwater samples were then analyzed for the Detected Hazardous and Solid Waste Constituents listed in the CP, Table III (Appendix A).

### 3.2 Purge Water Management

Approximately six gallons of purge water were generated during the January 2018 low-flow groundwater sampling event. The purge water was containerized in a Department of Transportation (DOT) certified, 55-gallon steel drum and temporarily stored on site in a fenced and locked container storage area (NOR 007). Since the groundwater sampled and analyzed during this event did not contain hazardous constituents above the applicable health-based levels (i.e. PCLs discussed in Section 3.10), the purge water generated was not considered hazardous in accordance with the EPA “contained-in determination” detailed in the 1986 EPA memorandum “RCRA Regulatory Status of Contaminated Groundwater”. However, wastes generated during the 2018 first semi-annual monitoring event were combined with purge water from site-wide groundwater monitoring activities and transported from the Site by Stericycle Specialty Waste Solutions, Inc. to the Clean Harbors Deer Park, LLC facility, located in La Porte, Texas on April 13, 2018 under EPA waste code F034 and TCEQ Notice of Registration (NOR) waste code 0914101H. Waste manifest is provided in Appendix D.

### 3.3 Monitoring and Corrective Action System Wells

A summary of the current monitoring and corrective action groundwater wells is discussed in Section 3.1.1. Configuration of the current monitoring and corrective action well network is presented on Figure 2.

### 3.4 Analytical Results

The 2018 first semi-annual groundwater analytical results from the A-TZ and B-TZ are summarized in Tables 1 and 2, respectively and the laboratory analytical report is provided in Appendix C. The analytical results were compared to the Detected Hazardous and Solid Waste Constituent limits, which are taken from the current TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Protective Concentration Levels (PCLs). TRRP PCLs serve as the Groundwater Protection Standard (GWPS), as detailed in Section IV.D and Table III of the CP. If any concentrations exceeded the concentration limits of this report, the concentration is bolded within the table.

Quality assurance/quality control (QA/QC) samples (matrix spike and matrix spike duplicate results) are summarized in Table 3.

### 3.5 Well Measurements

During the sampling event, the following information was recorded at each monitoring well:

#### **Before Sampling:**

- The presence of light NAPLs was evaluated; and
- Depth to groundwater below the top of casing was measured to the nearest 0.01 foot.

### **After Sampling:**

- The presence of dense non-aqueous phase liquids (DNAPLs) were evaluated using visual observations and an oil-water interface probe; and
- Total well depths of the wells were measured.

Table 4 provides a summary of these measurements. None of the compliance wells had measurable amounts or any indication of LNAPL or DNAPL.

## **3.6 Potentiometric Surface Maps**

Groundwater elevation data recorded during the 2018 First semi-annual monitoring event were used to create potentiometric surface maps of the A-TZ and B-TZ, presented on Figures 3 and 4, respectively.

The two uppermost groundwater bearing units, the A-TZ and the B-TZ, were monitored during this period. Groundwater elevation data collected in the A-TZ during the January 2018 sampling event show a groundwater high in the southeast corner of the unit with a hydraulic gradient in a northwest direction of approximately 0.05 ft/ft. Groundwater flow during the previous event (2017 second semi-annual monitoring event) was observed to have a similar hydraulic gradient.

Groundwater elevation data collected in the B-TZ show groundwater flow to the southwest with a hydraulic gradient of approximately 0.01 ft/ft. Groundwater flow during the previous event (2017 second semi-annual monitoring event) was observed to have a similar southwest hydraulic gradient.

## **3.7 Non-Aqueous Phase Liquids**

Measurable amounts of LNAPL and/or DNAPL were not observed in any of the compliance wells.

## **3.8 Recovered Groundwater and NAPL**

To date, a recovery system has not been installed nor is necessary at the SWMU 1; therefore, this provision is not applicable.

## **3.9 Contaminant Mass Recovered**

With the groundwater analytical data for the POC wells in compliance and no groundwater recovery system installed, or necessary, this provision is not applicable for the Site.

## **3.10 Analytical Data Evaluation**

Section VI.D of the CP describes two methods which may be used to determine the compliance status of a given well:

- Analytical results may be either directly compared with PCLs (CP Table III; included in Appendix A), or
- Analytical results can be statistically compared with PCLs using the Confidence Interval Procedure for the mean concentration based on normal, log-normal, or non-parametric distribution, which the 95% confidence coefficient of the t-distribution will be used in construction of the confidence interval.

Direct comparison to PCLs was used to evaluate the analytical data. Tables 1 (A-TZ) and 2 (B-TZ) show the results of a direct comparison of data for this sampling event to the respective PCLs. Wells and piezometers are in compliance if each of the constituents listed in the CP Table III was reported at a concentration less than or

equal to the PCL. Based on the analytical results from the January 2018 monitoring event, the compliance wells completed in both transmissive zones are compliant with GWPSs. Compliance status for each of the monitoring wells is provided in Table 5.

Monitoring wells in A-TZ and B-TZ have not exceeded the established CP PCLs since July 2005, at which time dibenzofuran exceeded its respective PCL of 0.098 mg/L in MW-01A (0.11 mg/L). Including the 2018 first semi-annual analytical data, the SMWU 1 monitoring wells have been compliant for 24 consecutive semi-annual monitoring events (12 years). Concentration versus time graphs for COCs in the A-TZ (2-methylnaphthalene (Figure E-1), dibenzofuran (Figure E-2), and naphthalene (Figure E-3)) and the B-TZ (dibenzofuran (Figure E-4) and naphthalene (Figure E-5)) are provided in Appendix E. The graphs demonstrate that COC concentrations in the A-TZ and B-TZ POC wells have shown a steady decrease over time, and are currently compliant with the TCEQ groundwater protection standards.

A QA/QC review and Data Usability Summary (DUS) were prepared for the January 2018 analytical data by GHD Services Inc. (Appendix C). The laboratory qualified analytes with concentrations above the sample detection limits (SDLs) but below the method quantitation limits (MQLs) as estimated on analytical tables (Tables 1 and 2). In addition to the laboratory qualifiers, GHD qualified the following results:

- FB-01 and FB-02 – Field blanks yielded low level detections for bis(2-ethylhexyl)phthalate and di-n-butylphthalate (DBP). One associated sample result was non-detect and was not impacted. No further qualification was necessary. The remaining associated sample results were reported with comparable concentrations to the field blanks were qualified as non-detect.

### 3.11 Reported Concentration Maps

Reported concentrations of each constituent analyzed for the 2018 first semi-annual monitoring event are presented on Figures 5 and 6 for the A-TZ and B-TZ compliance wells, respectively. In the event a constituent exceeded their respective PCL, the value would be highlighted on the figures. There were no verified exceedances of PCLs for any of the required constituents.

### 3.12 Extent of NAPL

No measurable amounts of LNAPL or DNAPL were detected in any of the compliance wells.

### 3.13 Updated Compliance Schedule

Section X of the CP requires that the Permittee submit a schedule summarizing the activities required by the Compliance Plan issued on June 10, 2005, which was originally submitted to the TCEQ on August 4, 2004. An updated compliance schedule is included as Appendix F of this report.

### 3.14 Summary of Changes Made to Corrective Action Program

No changes have been made to the corrective action program.

### 3.15 Modifications and Amendments to Compliance Plan

A compliance plan renewal application was submitted to TCEQ on December 23, 2003 consistent with the renewal requirements for the RCRA permit at the site. The RCRA permit and CP were issued June 10, 2005. There have been no modifications or amendments to the Compliance Plan since the last permit issued. However, a RCRA Part A and Part B Permit Renewal Application with a Major Modification to the Compliance Plan was submitted on December 10, 2014, with revisions dated December 7, 2015, July 29, 2016, and June 24, 2017.

The Permit Renewal Application is currently under TCEQ review. A Class 1 Permit Modification to update the facility contact information was submitted on February 28, 2018 and approved by the TCEQ in a letter dated March 20, 2018.

### **3.16 Corrective Measures Implementation (CMI) Report**

A Response Action Plan (RAP) was submitted within the Compliance Plan on December 10, 2014 with revisions on December 7, 2015 to the TCEQ. Additional revisions (Revision 3) to the RAP dated June 24, 2017 were submitted for TCEQ review.

### **3.17 Well Casing Elevations**

In accordance with the facility Groundwater Sampling and Analysis Plan (GWSAP) dated May 13, 2004 (Revision 1), which requires SWMU 1 monitoring well elevations to be resurveyed every five years, the six A-TZ and four B-TZ monitoring well elevations were most recently surveyed on December 23, 2015. The report for the resurveyed well casing elevations was submitted to the TCEQ on January 29, 2016 under a separate cover letter.

### **3.18 Recommendation for Changes**

Recommendations for changes to the post-closure care for SWMU 1 are included in the RCRA Part B Permit Renewal Application submitted on December 10, 2014, with revisions dated December 7, 2015, July 29, 2016, and June 24, 2017.

### **3.19 Well Installation and/or Abandonment**

No monitoring wells were installed or abandoned as part of the monitoring program or the Corrective Action Program during the reporting period.

### **3.20 Activity Within Area Subject to Institutional Control**

No areas are under institutional control; therefore, this provision does not apply.

### **3.21 Other Requested Items**

No other items have been requested by the executive director.

**TABLES**

**Table 1**  
**Summary of Analytical Results for the A-Transmissive Zone (A-TZ)**  
**Semiannual Monitoring Report: 2018 First Semi-Annual Event**

**Houston Wood Preserving Works**  
**Houston, Texas**

Analyte	PCL (mg/L)	Monitoring Well IDs (Concentrations mg/L)																				
		MW-01A			FD-01			MW-02			MW-07			MW-08			MW-10A			MW-11A		
		1/4/2018	LQ	VQ	1/4/2018	LQ	VQ	1/4/2018	LQ	VQ	1/4/2018	LQ	VQ	1/4/2018	LQ	VQ	1/4/2018	LQ	VQ	1/3/2018	LQ	VQ
Acenaphthene	1.5	0.041			0.039			0.015			0.000027	U	U	0.000027	U	U	0.000027	U	U	0.000027	U	U
Acenaphthylene	1.5	0.00086			0.00083			0.00018			0.000015	U	U	0.000015	U	U	0.000015	U	U	0.000015	U	U
Anthracene	7.3	0.0012			0.0011			0.00036			0.00014			0.000014	U	U	0.000014	U	U	0.000014	U	U
bis(2-ethylhexyl)phthalate	0.006	0.000072	J	U	0.000085	J	U	0.00016	J	U	0.000088	J	U	0.000097	J	U	0.00057	J	U	0.000073	J	U
Dibenzofuran	0.098	0.0016			0.0015			0.0019			0.00002	U	U	0.00002	U	U	0.00002	U	U	0.00002	U	U
Fluoranthene	0.98	0.0032			0.0029			0.00071			0.00001	U	U	0.00001	U	U	0.00001	U	U	0.00001	U	U
Fluorene	0.98	0.018			0.017			0.0099			0.00003	U	U	0.00003	U	U	0.00003	U	U	0.00003	U	U
2-Methylnaphthalene	0.098	0.000096	J	J	0.00024			0.0051			0.000019	U	U	0.000019	U	U	0.000019	U	U	0.000019	U	U
Naphthalene	0.49	0.00002	U	U	0.00002	U	U	0.00015			0.00002	U	U	0.00002	U	U	0.00002	U	U	0.00002	U	U
Phenanthrene	0.73	0.0004			0.00035			0.0011			0.000021	U	U	0.000021	U	U	0.000021	U	U	0.000021	U	U
Pyrene	0.73	0.0014			0.0014			0.00032			0.000019	U	U	0.000019	U	U	0.000019	U	U	0.000019	U	U

**Notes:**

PCL = Protective Concentration Level

The Compliance Plan Section IV.D defines the Groundwater Protection Standard (GWPS) as the PCL

FD-01 = Duplicate sample collected at MW-01A

LQ - Lab Qualifier

J = Estimated value between the SDL and the MQL

U = Value not detected greater than the MQL

VQ - Validation Qualifier

J = Estimated concentration

U = Non-detect due to low concentrations detected in the associated field blank



**Table 2**  
**Summary of Analytical Results for the B-Transmissive Zone (B-TZ)**  
**Semiannual Monitoring Report: 2018 First Semi-Annual Event**

**Houston Wood Preserving Works**  
**Houston, Texas**

Analyte	PCL (mg/L)	Monitoring Well IDs (Concentrations mg/L)														
		MW-10B			MW-11B			P-10			FD-02			P-12		
		1/4/2018	LQ	VQ	1/3/2018	LQ	VQ	1/4/2018	LQ	VQ	1/4/2018	LQ	VQ	1/4/2018	LQ	VQ
Acenaphthene	1.5	0.093			0.000027	U	U	0.000027	U	U	0.0033			0.000027	U	U
Acenaphthylene	1.5	0.00068			0.000015	U	U	0.000015	U	U	0.000015	U	U	0.000015	U	U
Anthracene	7.3	0.0052			0.0001			0.000014	U	U	0.00017			0.000036	J	J
bis(2-ethylhexyl)phthalate	0.006	0.000059	J	U	0.0001	J	U	0.00024		U	0.00017	J	U	0.00012	J	U
Dibenzofuran	0.098	0.048			0.00002	U	U	0.00029			0.00093			0.00002	U	U
Di-n-butyl phthalate	2.4	0.00002	J	U	0.000045	J	U	0.000042	J	U	0.000034	J	U	0.000022	J	U
Fluoranthene	0.98	0.0053			0.00001	U	U	0.00017			0.00016			0.00001	U	U
Fluorene	0.98	0.06			0.00003	U	U	0.00042			0.0012			0.00003	U	U
Naphthalene	0.49	0.0013			0.00002	U	U	0.00002	U	U	0.0034			0.00002	U	U
Phenol	7.3	0.000035	U	U	0.000035	U	U	0.000035	U	U	0.0014			0.000035	U	U
Pyrene	0.73	0.0019			0.000019	U	U	0.000019	U	U	0.000019	U	U	0.000097	J	J

Notes:

PCL = Protective Concentration Level

The Compliance Plan Section IV.D defines the Groundwater Protection Standard (GWPS) as the PCL

FD-02 = Duplicate sample collected at P-10

LQ - Lab Qualifier

J = Estimated value between the SDL and the MDQ

U = Value not detected greater than the MQL

VQ - Validation Qualifier

J = Estimated concentration

U = Non-detect due to low concentrations detected in the associated field blank

**Table 3**  
**Summary of Analytical Results for Quality Assurance/Quality Control Samples**  
**Semiannual Monitoring Report: 2018 First Semi-Annual Event**

**Houston Wood Preserving Works**  
**Houston, Texas**

Analyte	PCL (mg/L)	P-12(MS) <sup>(1)</sup>		P-12(MSD) <sup>(1)</sup>	
		Matrix Spike		Matrix Spike Duplicate	
Acenaphthene	1.5	0.003381		0.002765	
Acenaphthylene	1.5	0.003524		0.003124	
Anthracene	7.3	0.004017		0.003542	
bis(2-ethylhexyl)phthalate	0.006	0.005445		0.004494	
Dibenzofuran	0.098	0.003404		0.002972	
Fluoranthene	0.98	0.004979		0.004369	
Fluorene	0.98	0.003523		0.003083	
2-Methylnaphthalene	0.098	0.003552		0.003256	
Naphthalene	0.49	0.003569		0.003115	
Phenanthrene	0.73	0.003955		0.003596	
Pyrene	0.73	0.004815		0.004278	

**Notes:**

PCL = Protective Concentration Level

(1) = P-12(MS) and P-12(MSD) are matrix spike and matrix spike duplicate samples collected at P-12, respectively.

N = Relative percent difference of the MS and MSD exceeds the control limits.

**Table 4**  
**Water Level Measurements**  
**Semiannual Monitoring Report: 2018 First Semi-Annual Event**

**Houston Wood Preserving Works**  
**Houston, Texas**

Well ID	Top of Casing Elevation (TOC) (ft MSL)*	Date Measured	Water Depth (ft. BTOC)	Depth to NAPL (ft. BTOC)	Total Well Depth as Completed (ft. BTOC)	Total Well Depth (ft. BTOC)	Potentiometric Elevation (ft. MSL)
<b>A-TZ Monitoring Locations</b>							
MW-01A	47.90	1/4/2018	6.47	ND	20.2	19.85	41.43
MW-02	47.89	1/4/2018	6.87	ND	20.3	24.10	41.02
MW-07	48.91	1/4/2018	7.87	ND	25.9	22.25	41.04
MW-08	49.33	1/4/2018	8.02	ND	26.8	25.05	41.31
MW-10A	49.83	1/4/2018	8.63	ND	25.9	20.20	41.20
MW-11A	50.16	1/3/2018	8.94	ND	24.4	24.05	41.22
<b>B-TZ Monitoring Locations</b>							
MW-10B	49.96	1/4/2018	8.71	ND	48.8	46.45	41.25
MW-11B	50.24	1/3/2018	9.04	ND	46.8	46.65	41.20
P-10	47.71	1/4/2018	6.71	ND	40.0	42.85	41.00
P-12	48.76	1/4/2018	7.14	ND	40.0	42.85	41.62

Notes

BTOC = feet below the top of the well casing

ft. MSL = feet above Mean Sea Level

NA = Not Available

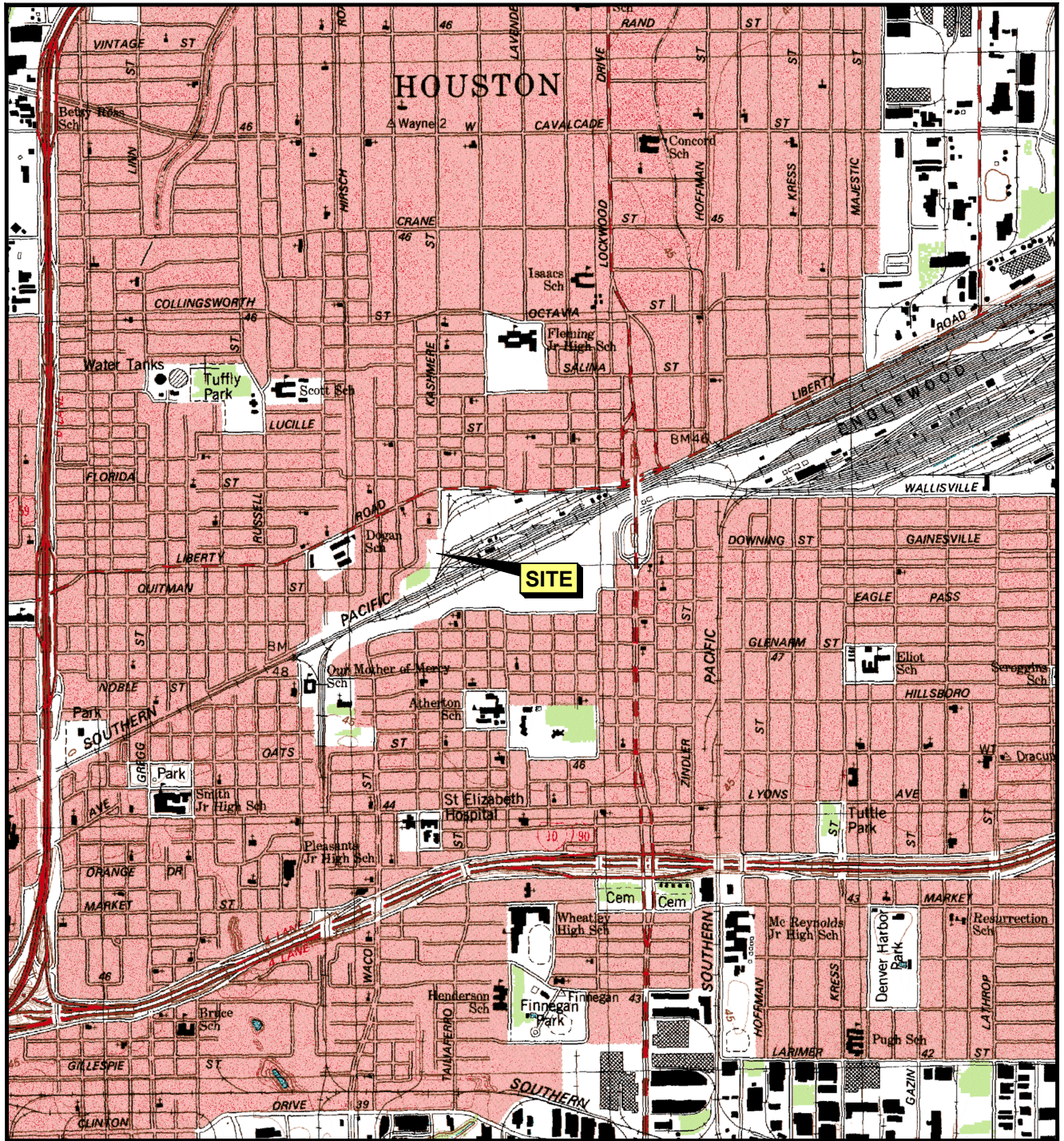
\*TOC elevations based on December 2015 survey (see Section 3.17)

**Table 5**  
**Compliance Status of Wells and Piezometers**  
**Semiannual Monitoring Report: 2018 First Semi-Annual Event**

**Houston Wood Preserving Works**  
**Houston, Texas**

Zone	Monitoring Well Location	Well Designation	Compliance Status
A-TZ Monitoring Location	MW-01A	Point of Compliance	Compliant
	MW-02	Point of Compliance	Compliant
	MW-07	Point of Compliance	Compliant
	MW-08	Background Well	Compliant
	MW-10A	Point of Compliance	Compliant
	MW-11A	Point of Compliance	Compliant
B-TZ Monitoring Location	MW-10B	Point of Compliance	Compliant
	MW-11B	Point of Compliance	Compliant
	P-10	Point of Compliance	Compliant
	P-12	Background Well	Compliant

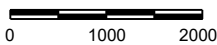
**FIGURES**



QUADRANGLE LOCATION



Scale in Feet



Source:  
U.S.G.S. 7.5 minute quadrangle, Settegast, Texas, 1982.



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**HOUSTON WOOD PRESERVING WORKS**

Figure 1

**SITE LOCATION MAP**

PROJECT: 1358

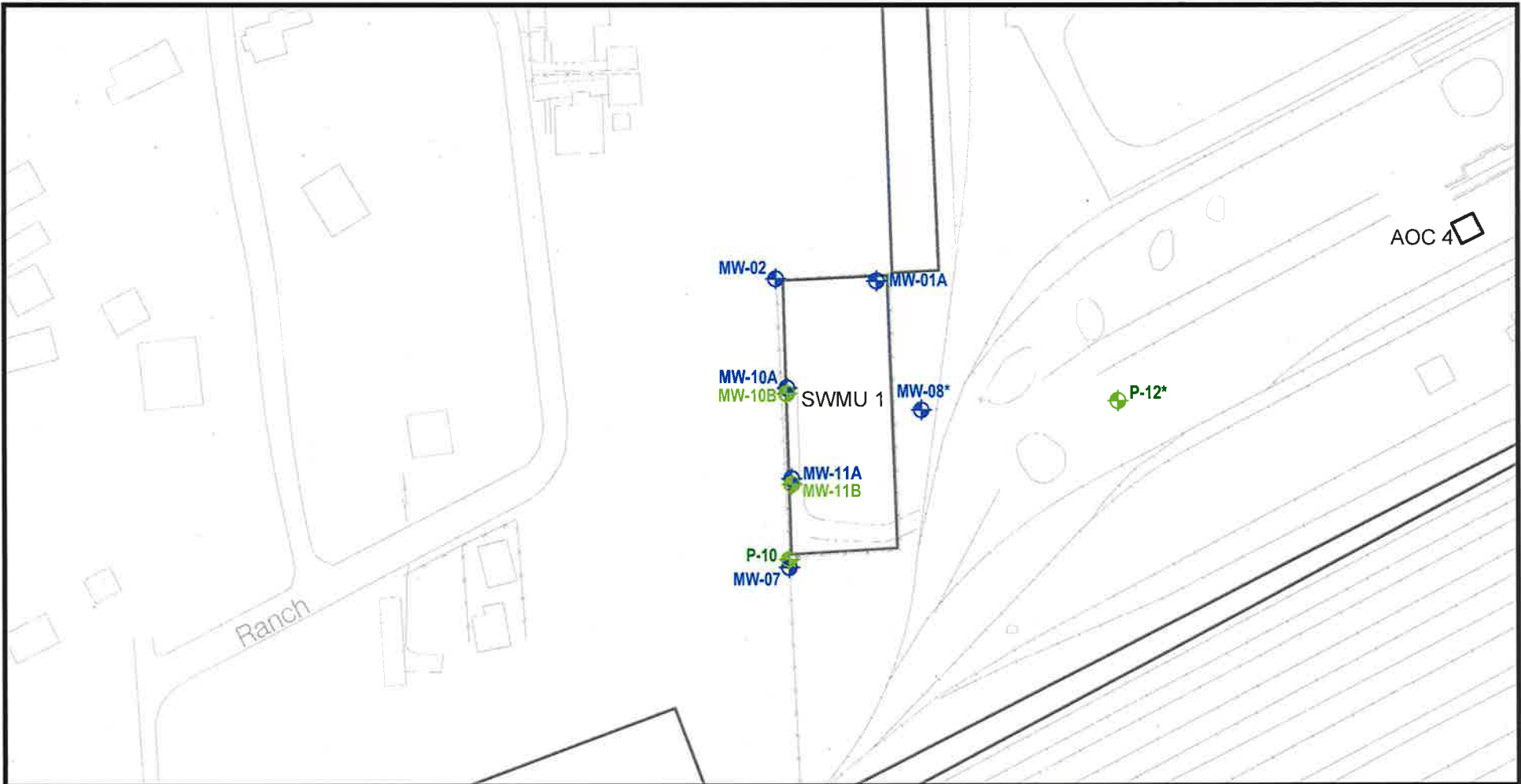
BY: AJD

REVISIONS

DATE: APR., 2018

CHECKED: ECM

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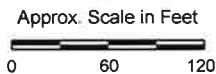
**EXPLANATION**

- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- A-TZ Monitoring Well Location
- B-TZ Monitoring Well Location

Note:  
\* Background well.



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Source:  
Base map from ERM-Southwest, Inc  
0014419a310.dwg, 6/19/2006.



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**HOUSTON WOOD PRESERVING WORKS**

Figure 2

**CORRECTIVE ACTION MONITORING  
WELL NETWORK  
TCEQ PERMIT UNIT NO. 1**

PROJECT: 1358

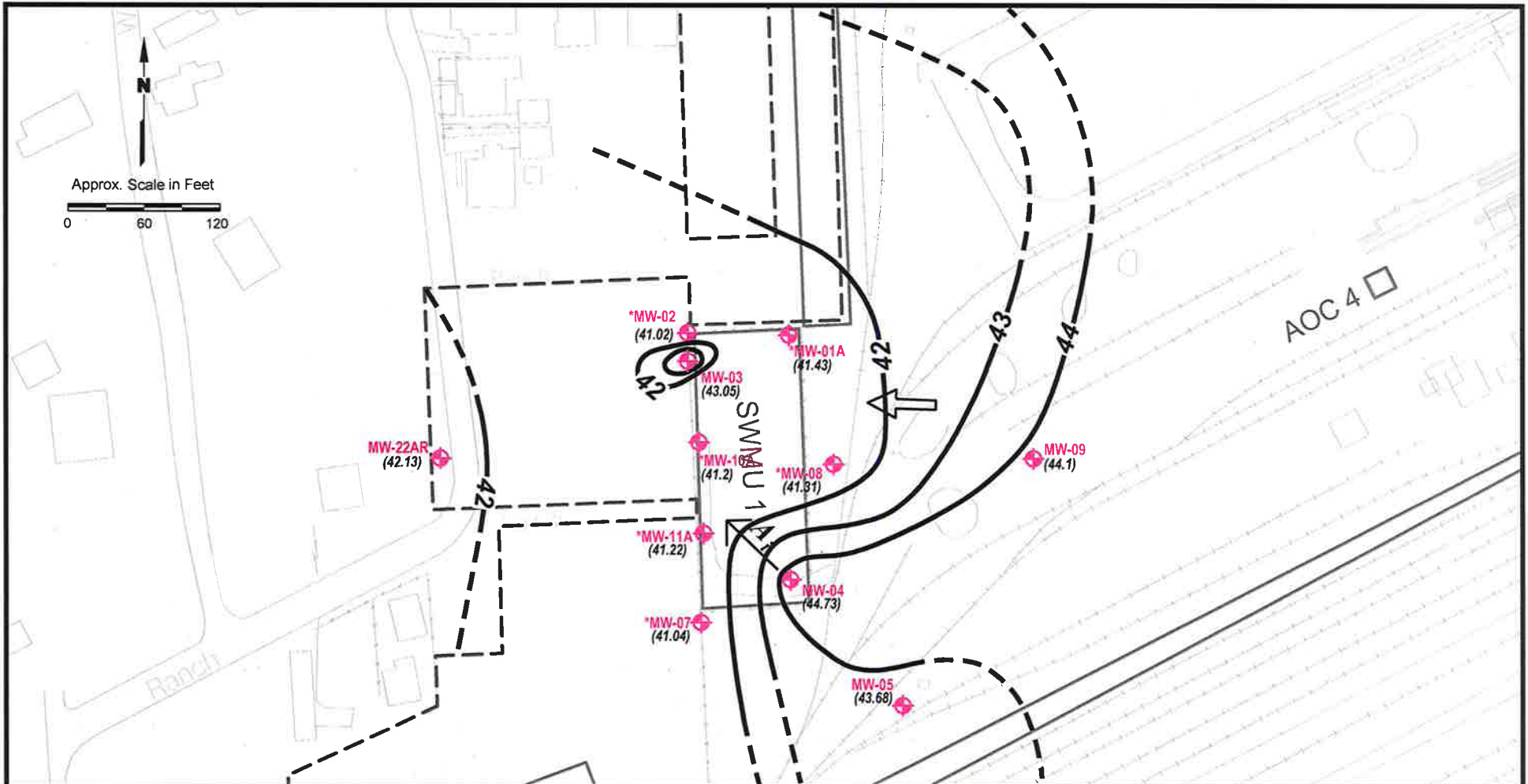
BY: AJD

REVISIONS

DATE: APR., 2018

CHECKED: ECM

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**EXPLANATION**

- Property Boundary
- Road, Parking Lot, Sidewalk
- Fence
- Railroad
- A-TZ Monitoring Well Location  
(\* - Compliance Well)
- (42.32)

 Groundwater Elevation (Ft, MSL)  
(NM = Not Measured)
- 42 Groundwater Elevation Contour  
(Ft, MSL) C.I. = 1 Ft  
(dashed where inferred)
- General Groundwater Flow Direction

ESTIMATED GRADIENT

$$A_i \rightarrow A_i = \frac{3.51\text{ft}}{72\text{ft}} = 0.05 \text{ ft/ft}$$

Source:  
Base map from ERM-Southwest, Inc  
0014419a310.dwg, 6/19/2006.



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HOUSTON WOOD PRESERVING WORKS

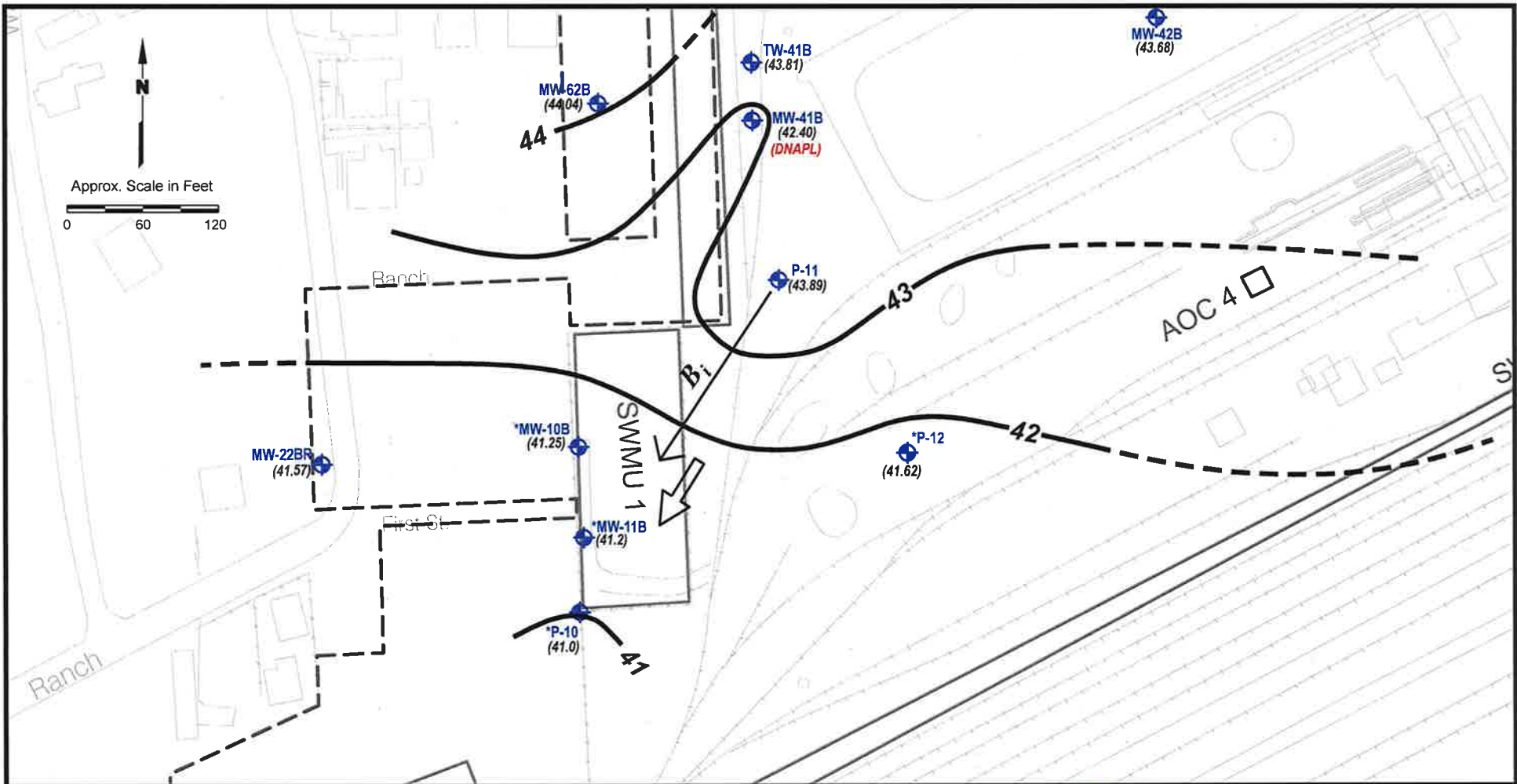
Figure 3

**A-TZ POTENTIOMETRIC SURFACE  
CONTOUR MAP  
JANUARY 3, 2018**

PROJECT: 1358	BY: AJD	REVISIONS
DATE: MAY, 2018	CHECKED: ECM	

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**EXPLANATION**

- Property Boundary
- Road, Parking Lot, Sidewalk
- ..... Fence
- Railroad
- ◆ B-TZ Monitoring Well Location (\* - Compliance Well)
- (42.22) Groundwater Elevation (Ft, MSL) (NM = Not Measured)
- 42 — Groundwater Elevation Contour (Ft, MSL) C.I. = 1 Ft (dashed where inferred)
- ➔ General Groundwater Flow Direction

ESTIMATED GRADIENT

$$B_i \rightarrow B_i = \frac{2.64ft}{200ft} = 0.01 ft/ft$$

Source:  
Base map from ERM-Southwest, Inc  
0014419a310.dwg, 6/19/2006



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HOUSTON WOOD PRESERVING WORKS

Figure 4

**B-TZ POTENTIOMETRIC SURFACE  
CONTOUR MAP  
JANUARY 3, 2018**

PROJECT: 1358

BY: AJD

REVISIONS

DATE: MAY, 2018

CHECKED: ECM

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Constituent	Conc. (mg/L)
Acenaphthene	0.015
Acenaphthylene	0.00018
Anthracene	0.00036
bis(2-ethylhexyl)phthalate	0.00016U
Dibenzofuran	0.0019
Fluoranthene	0.00071
Fluorene	0.0099
2-Methylnaphthalene	0.0051
Naphthalene	0.00015
Phenathrene	0.0011
Pyrene	0.00032

Constituent	Conc. (mg/L)	Conc. (mg/L)
Acenaphthene	0.041	0.039
Acenaphthylene	0.00086	0.00083
Anthracene	0.0012	0.0011
bis(2-ethylhexyl)phthalate	0.000072U	0.000085U
Dibenzofuran	0.0016	0.0015
Fluoranthene	0.0032	0.0029
Fluorene	0.018	0.017
2-Methylnaphthalene	0.000096J	0.00024
Naphthalene	0.00002U	0.00002U
Phenathrene	0.0004	0.00035
Pyrene	0.0014	0.0014

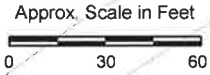
Constituent	Conc. (mg/L)
Acenaphthene	0.000027U
Acenaphthylene	0.000015U
Anthracene	0.000014U
bis(2-ethylhexyl)phthalate	0.000057U
Dibenzofuran	0.00002U
Fluoranthene	0.00001U
Fluorene	0.00003U
2-Methylnaphthalene	0.000019U
Naphthalene	0.00002U
Phenathrene	0.000021U
Pyrene	0.000019U

Constituent	Conc. (mg/L)
Acenaphthene	0.000027U
Acenaphthylene	0.000015U
Anthracene	0.000014U
bis(2-ethylhexyl)phthalate	0.000073U
Dibenzofuran	0.00002U
Fluoranthene	0.00001U
Fluorene	0.00003U
2-Methylnaphthalene	0.000019U
Naphthalene	0.00002U
Phenathrene	0.000021U
Pyrene	0.000019U

Constituent	Conc. (mg/L)
Acenaphthene	0.000027U
Acenaphthylene	0.000015U
Anthracene	0.00014
bis(2-ethylhexyl)phthalate	0.000088U
Dibenzofuran	0.00002U
Fluoranthene	0.00001U
Fluorene	0.00003U
2-Methylnaphthalene	0.000019U
Naphthalene	0.00002U
Phenathrene	0.000021U
Pyrene	0.000019U

Constituent	Conc. (mg/L)
Acenaphthene	0.000027U
Acenaphthylene	0.000015U
Anthracene	0.000014U
bis(2-ethylhexyl)phthalate	0.000097U
Dibenzofuran	0.00002U
Fluoranthene	0.00001U
Fluorene	0.00003U
2-Methylnaphthalene	0.000019U
Naphthalene	0.00002U
Phenathrene	0.000021U
Pyrene	0.000019U

Indicator Parameters	
Constituent	PCL (mg/L)
Acenaphthene	1.5
Acenaphthylene	1.5
Anthracene	7.3
bis(2-ethylhexyl)phthalate	0.006
Dibenzofuran	0.098
Fluoranthene	0.98
Fluorene	0.98
2-Methylnaphthalene	0.098
Naphthalene	0.49
Phenathrene	0.73
Pyrene	0.73



Source:  
Base map from ERM-Southwest, Inc  
0014419a310.dwg, 6/19/2006.



**EXPLANATION**

- +—+— Fence
- +—+— Railroad
- ⊕ A-TZ Monitoring Well Location

Notes:  
1. Samples collected on January 3, 2018.  
2. J= Estimated value between SQL and MDL.  
3. U= Value not detected greater than the MDL.  
4. \* Field duplicate.

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**HOUSTON WOOD PRESERVING WORKS**

Figure 5  
**A-TZ REPORTED CONCENTRATIONS  
2018 1<sup>st</sup> SEMI ANNUAL  
MONITORING EVENT**

PROJECT: 1358	BY: AJD	REVISIONS
DATE: MAY, 2018	CHECKED: ECM	

**PASTOR, BEHLING & WHEELER, LLC**  
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Approx. Scale in Feet



Source:  
Base map from ERM-Southwest, Inc  
0014419a310.dwg, 6/19/2006.

Constituent	Conc. (mg/L)
Acenaphthene	0.093
Acenaphthylene	0.00068
Anthracene	0.0052
bis(2-ethylhexyl)phthalate	0.000059U
Dibenzofuran	0.048
Di-n-butyl Phthalate	0.00002U
Fluoranthene	0.0053
Fluorene	0.06
Naphthalene	0.0013
Phenol	0.000035U
Pyrene	0.0019

MW-10B

SWMU 1

Constituent	Conc. (mg/L)
Acenaphthene	0.000027U
Acenaphthylene	0.000015U
Anthracene	0.0001
bis(2-ethylhexyl)phthalate	0.0001U
Dibenzofuran	0.00002U
Di-n-butyl Phthalate	0.000045U
Fluoranthene	0.00001U
Fluorene	0.00003U
Naphthalene	0.00002U
Phenol	0.000035U
Pyrene	0.000019U

MW-11B

P-10

Constituent	Conc. (mg/L)	Conc.* (mg/L)
Acenaphthene	0.000027U	0.0033
Acenaphthylene	0.000015U	0.000015U
Anthracene	0.000014U	0.00017
bis(2-ethylhexyl)phthalate	0.000024U	0.00017U
Dibenzofuran	0.00029	0.00093
Di-n-butyl Phthalate	0.000042U	0.000034U
Fluoranthene	0.00017	0.00016
Fluorene	0.00042	0.0012
Naphthalene	0.00002U	0.0034
Phenol	0.000035U	0.0014
Pyrene	0.000019U	0.000019U

Constituent	Conc. (mg/L)
Acenaphthene	0.000027U
Acenaphthylene	0.000015U
Anthracene	0.000036J
bis(2-ethylhexyl)phthalate	0.00012U
Dibenzofuran	0.00002U
Di-n-butyl Phthalate	0.000022U
Fluoranthene	0.00001U
Fluorene	0.00003U
Naphthalene	0.00002U
Phenol	0.000035U
Pyrene	0.000097J

P-12

Indicator Parameters

Constituent	PCL (mg/L)
Acenaphthene	1.5
Acenaphthylene	1.5
Anthracene	7.3
bis(2-ethylhexyl)phthalate	0.006
Dibenzofuran	0.098
Di-n-butyl Phthalate	2.4
Fluoranthene	0.98
Fluorene	0.98
Naphthalene	0.49
Phenol	7.3
Pyrene	0.73

**EXPLANATION**

- Fence
- Railroad
- B-TZ Monitoring Well Location
- Piezometer Location

**Notes:**

1. Samples collected on January 3, 2018.
2. J= Estimated value between SQL and MDL.
3. U= Value not detected greater than the MDL.
4. JL= Estimated concentration; biased low.
5. Highlighted value exceeds PCL.
6. \* Field duplicate.



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**HOUSTON WOOD PRESERVING WORKS**

Figure 6

**B-TZ REPORTED CONCENTRATIONS  
2018 1<sup>st</sup> SEMI ANNUAL  
MONITORING EVENT**

PROJECT: 1358	BY: AJD	REVISIONS
DATE: MAY, 2018	CHECKED: ECM	

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**APPENDIX A**

# Compliance Plan Tables

**TABLE III - CORRECTIVE ACTION PROGRAM**  
 Table of Detected Hazardous and Solid Waste Constituents and  
 Concentration Limits for the Ground-Water Protection Standard

**Closed Surface Impoundment (NOR Unit No. 001, SWMU No. 01)**

<u>A-Transmissive Zone</u>		<u>B-Transmissive Zone</u>	
COLUMN A Hazardous Constituents	COLUMN B Concentration Limits (mg/l)	COLUMN A Hazardous Constituents	COLUMN B Concentration Limits (mg/l)
Acenaphthene	1.5 <sup>PCL</sup>	Acenaphthene	1.5 <sup>PCL</sup>
Acenaphthylene	1.5 <sup>PCL</sup>	Acenaphthylene	1.5 <sup>PCL</sup>
Anthracene	7.3 <sup>PCL</sup>	Anthracene	7.3 <sup>PCL</sup>
Dibenzofuran	0.098 <sup>PCL</sup>	Dibenzofuran	0.098 <sup>PCL</sup>
Bis(2-ethylhexyl)phthalate	0.006 <sup>PCL</sup>	Bis(2-ethylhexyl)phthalate	0.006 <sup>PCL</sup>
Fluoranthene	0.98 <sup>PCL</sup>	Fluoranthene	0.98 <sup>PCL</sup>
Fluorene	0.98 <sup>PCL</sup>	Fluorene	0.98 <sup>PCL</sup>
2-Methylnaphthalene	0.098 <sup>PCL</sup>	Di-n-butyl phthalate	2.4 <sup>PCL</sup>
Naphthalene	0.49 <sup>PCL</sup>	Naphthalene	0.49 <sup>PCL</sup>
Phenanthrene	0.73 <sup>PCL</sup>	Phenol	7.3 <sup>PCL</sup>
Pyrene	0.73 <sup>PCL</sup>	Pyrene	0.73 <sup>PCL</sup>

PCL. Alternate Concentration Limit pursuant to 30 TAC §335.160(b) based upon the Protective Concentration Level determined under 30 TAC Chapter 350 for Residential Land Use. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

TABLE V  
Designation of Wells by Function

POINT OF COMPLIANCE WELLS

1. Closed Surface Impoundment (NOR Unit No. 001, SWMU No. 01)  
A-Transmissive Zone: MW-01A, MW-02, MW-07, MW-10A, and MW-11A  
B-Transmissive Zone: MW-10B, MW-11B, and P-10

POINT OF EXPOSURE WELLS

1. Closed Surface Impoundment (NOR Unit No. 001, SWMU No. 01)  
None

BACKGROUND WELLS

1. Closed Surface Impoundment (NOR Unit No. 001, SWMU No. 01)  
A-Transmissive Zone: MW-8  
B-Transmissive Zone: P-12

Note: Wells and piezometers identified on Attachment A maps that are not listed in this table are subject to change, upon approval by the executive director, without modification to the Compliance Plan. The wells and piezometers for the Closed Surface Impoundment are depicted on Attachment A, Sheets 3 and 4.

**APPENDIX B**

# Field Parameters

**Table B-1  
Groundwater Sampling Field Parameters  
Semiannual Monitoring Report: 2018 First Semi-Annual Event**

**Houston Wood Preserving Works  
Houston, Texas**

Field Parameter	Monitoring Well IDs									
	A-Transmissive Zone						B-Transmissive Zone			
	MW-01A	MW-02	MW-07	MW-08	MW-10A	MW-11A	MW-10B	MW-11B	P-10	P-12
	1/4/2018	1/4/2018	1/4/2018	1/4/2018	1/4/2018	1/3/2018	1/4/2018	1/3/2018	1/4/2018	1/4/2018
Time Sampled (hrs CST)	10:20	9:20	12:15	15:30	7:45	16:40	8:30	17:20	11:30	14:05
Temperature (°C)	22.6	23.1	22.2	22.4	23.1	21.7	21.9	22.3	22.6	22.7
pH (Standard Units)	6.87	6.96	6.92	6.86	6.71	6.74	6.85	6.72	6.81	6.97
Specific Conductivity (mmhos/cm)	1590	1940	2110	1930	1780	1790	2130	1870	2060	2270
Dissolved Oxygen (mg/L)	0.71	1.06	0.39	0.47	0.52	0.81	0.71	0.61	0.84	0.47
Turbidity (NTU)	6.2	7.9	8.1	3.6	4.2	7.2	5.1	11	3.4	7.1



**APPENDIX C**

**Laboratory Analytical Reports and  
Data Usability Summaries**



# Memorandum

February 20, 2018

To: Eric Matzner Ref. No.: 085706A-1620

From: <sup>CK</sup> Chris G. Knight/eew/327-NF Tel: 512-506-8803

CC: Jesse Orth; Jonathan Lang; Julie Lidstone

**Subject: Data Usability Summary  
HWPW - Semiannual Monitoring Event  
Union Pacific Railroad (UPRR) / Houston TX-Wood Preserving Works  
Houston, Texas  
January 2018**

## 1. Scope of Data Usability Study

This document details a Data Usability Summary (DUS) of analytical results for groundwater samples collected in support of the HWPW - Semiannual Monitoring Event at the Houston TX-Wood Preserving Works site during January 2018. The samples were submitted to ALS Environmental, located in Houston, Texas and are reported in data package HS18010144. The intended use of the data is to support the HWPW-Semiannual Monitoring Event at the site by providing current concentrations of chemicals of concern (COCs).

Data were reviewed and validated by Chris G. Knight of GHD Services Inc. (GHD), in accordance with Title 30 of the Texas Administrative Code Section 350.54 (30 TAC 350.54) as described in the Texas Commission on Environmental Quality (TCEQ) Regulatory Guidance document entitled "Review and Reporting of COC Concentration Data under TRRP", (RG-366/TRRP-13), revised May 2010, herein referred to as "TRRP-13 Guidance". Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), field quality assurance/quality control (QA/QC) samples, the laboratory review checklist (LRC), and the laboratory exception report (ER).

A sample collection and analysis summary is presented in Table 1. This summary provides a cross-reference of field sample identification numbers and location identification. Each sample is assigned a unique field identification number.

The validated sample results are presented in Table 2. A summary of the analytical methodology is presented in Table 3.

## 2. Laboratory Qualifications

The Laboratory's quality assurance program is consistent with the quality standards outlined in the National Environmental Laboratory Accreditation Program (NELAP). This laboratory was accredited under Texas



Certification number # T104704231 at the time the analysis was performed and the certificate is included in Attachment A.

### 3. Project Objectives

#### 3.1 Sampling/Analytical QA/QC Objectives

The QA/QC program was designed to identify contamination resulting from the sampling, sample transport and analytical process through the analysis of field blank samples, field duplicate sample sets, and method blanks. The QA/QC program was designed to evaluate the quality of the resulting data with respect to bias and precision through analysis of laboratory control samples (LCS) and matrix spike/matrix spike duplicate (MS/MSD) analyses.

### 4. Data Review/Validation Results

#### 4.1 Sample Holding Time and Preservation

All samples were shipped with chains of custody and the paper work was filled out properly. The samples were delivered on ice and stored by the laboratory at the required temperature (0-6°C).

Sample chain of custody documents and the analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

#### 4.2 Sample Containers

Sample containers used were certified pre-cleaned glass containers provided by the laboratory. These containers meet or exceed analyte specifications established in the United States Environmental Protection Agency (USEPA) *Specifications and Guidance for Contaminant-free Sample Containers*.

#### 4.3 Calibrations

According to the LRC, initial calibration and continuing calibration data met the criteria for the selected methods.

#### 4.4 Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with the investigative sample to determine the existence and magnitude of sample contamination introduced during the analytical procedures. As these were not discrete samples handled in the field, these blanks are not listed on the sample identification cross-reference list found in the data package.

For this study, laboratory method blanks were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch and results are reported in the laboratory data package.



All method blank results were non-detect or below the method quantitation limit (MQL), indicating that laboratory contamination was not a factor for this investigation.

#### **4.5 Internal Standard and Surrogate Spike Recoveries**

Recoveries of internal standards are addressed in the LRC of the data package. All internal standard recoveries associated with the compounds of interest were acceptable per the LRC.

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for semi-volatile organic compounds (SVOCs) are spiked with surrogate compounds prior to sample extraction and analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices. Each individual surrogate compound is expected to meet the laboratory control limits. According to the TRRP-13 Guidelines, one outlying surrogate is acceptable for methods with multiple surrogate spike compounds as long as the recovery is at least ten percent.

Surrogate recoveries were assessed against laboratory control limits and/or the guidance in TRRP-13. All surrogate recoveries met the above criteria.

#### **4.6 Laboratory Control Sample Analyses**

Laboratory control samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of one per twenty investigative samples and/or one per analytical batch.

The LCS contained all compounds of interest. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

#### **4.7 Matrix Spike /Matrix Spike Duplicate Analyses**

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with known concentration of the compounds of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analysis was performed as specified in Table 1. The recovery ranges established by the laboratory are adopted as the acceptance criteria for the project.

The MS/MSD samples were spiked with all compounds of interest. All percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

#### **4.8 Field QA/QC Samples**

The field QA/QC consisted of two field blank samples and two field duplicate sample sets.



### *Field Blank Sample Analysis*

To assess ambient conditions at the site, two field blank samples were submitted for analysis, as identified in Table 1. All results were non-detect for the compounds of interest with the following exception (see Table 4):

- i) WG-1620-FB01-20180103 and WG-1620-FB02-20180104 yielded low level detections for bis(2-ethylhexyl)phthalate (DEHP) and di-n-butylphthalate (DBP). One associated sample result was non-detect and was not impacted. No further qualification was necessary. The remaining associated sample results were reported with comparable concentrations to the field blanks were qualified as non-detect.

### *Field Duplicate Sample Analysis*

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than thirty percent for water samples. The RPDs are only used when sample concentrations are above the estimated regions of detection.

Field duplicate summary data are presented in Table 2. All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

## **4.9 Field Procedures**

Pastor, Behling & Wheeler, LLC (PB&W) collected groundwater samples in accordance with their Standard Operating Procedures (SOP) for sample collection.

## **4.10 Analyte Reporting**

The laboratory reported detected results for each analyte down to the sample detection limit (SDL), which is defined as the method detection limit (MDL) with sample-specific adjustments for dilutions, aliquot size, volumes, etc. Positive analyte detections less than the method quantitation limit (MQL) but greater than the SDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum.

## **5. Conclusion**

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are usable for the purpose of supporting the HWPW-Semiannual Monitoring Event at the site by providing current concentrations of chemicals of concern in groundwater samples with the qualifications noted herein.

Table 1

**Sample Collection and Analysis Summary**  
**HWPW - Semiannual Monitoring Event**  
**Union Pacific Railroad (UPRR)/ Houston TX-Wood Preserving Works**  
**Houston, Texas**  
**January 2018**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>	
					SVOCs	Comments
WG-1620-MW11A-20180103	MW-11A	Water	01/03/2018	16:40	X	
WG-1620-MW11B-20180103	MW-11B	Water	01/03/2018	17:20	X	
WG-1620-FB01-20180103	-	Water	01/03/2018	17:30	X	Field Blank
WG-1620-MW10A-20180104	MW-10A	Water	01/04/2018	07:45	X	
WG-1620-MW10B-20180104	MW-10B	Water	01/04/2018	08:30	X	
WG-1620-MW02-20180104	MW-02	Water	01/04/2018	09:20	X	
WG-1620-MW01A-20180104	MW-01A	Water	01/04/2018	10:20	X	
WG-1620-FD01-20180104	MW-01A	Water	01/04/2018	10:20	X	Field duplicate of MW-01A
WG-1620-P10-20180104	P-10	Water	01/04/2018	11:30	X	
WG-1620-FD02-20180104	P-10	Water	01/04/2018	11:30	X	Field duplicate of P-10
WG-1620-MW07-20180104	MW-07	Water	01/04/2018	12:15	X	
WG-1620-P12-20180104	P-12	Water	01/04/2018	14:05	X	MS/MSD
WG-1620-MW08-20180104	MW-08	Water	01/04/2018	15:10	X	
WG-1620-FB02-20180104	-	Water	01/04/2018	15:30	X	Field Blank

## Notes:

- SVOCs - Semi-volatile Organic Compounds  
MS/MSD - Matrix Spike/ Matrix Spike Duplicate  
"- " - Not Applicable

Table 2

**Analytical Results Summary**  
**HWPW - Semiannual Monitoring Event**  
**Union Pacific Railroad (UPRR)/ Houston TX-Wood Preserving Works**  
**Houston, Texas**  
**January 2018**

	Location ID:	MW-01A	MW-01A	MW-02	MW-07
	Sample Name:	WG-1620-MW01A-20180104	WG-1620-FD01-20180104	WG-1620-MW02-20180104	WG-1620-MW07-20180104
	Sample Date:	01/04/2018	01/04/2018 Duplicate	01/04/2018	01/04/2018
Parameters	Unit				
<b>Semi-volatile Organic Compounds</b>					
2-Methylnaphthalene	mg/L	0.000096 J	0.00024	0.0051	<0.000019
Acenaphthene	mg/L	0.041	0.039	0.015	<0.000027
Acenaphthylene	mg/L	0.00086	0.00083	0.00018	<0.000015
Anthracene	mg/L	0.0012	0.0011	0.00036	0.00014
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	<0.000072	<0.000085	<0.00016	<0.000088
Di-n-butylphthalate (DBP)	mg/L	--	--	--	--
Dibenzofuran	mg/L	0.0016	0.0015	0.0019	<0.000020
Fluoranthene	mg/L	0.0032	0.0029	0.00071	<0.000010
Fluorene	mg/L	0.018	0.017	0.0099	<0.000030
Naphthalene	mg/L	<0.000020	<0.000020	0.00015	<0.000020
Phenanthrene	mg/L	0.00040	0.00035	0.0011	<0.000021
Phenol	mg/L	--	--	--	--
Pyrene	mg/L	0.0014	0.0014	0.00032	<0.000019

Table 2

**Analytical Results Summary**  
**HWPW - Semiannual Monitoring Event**  
**Union Pacific Railroad (UPRR)/ Houston TX-Wood Preserving Works**  
**Houston, Texas**  
**January 2018**

Location ID:	MW-08	MW-10A	MW-10B	MW-11A	
Sample Name:	WG-1620-MW08-20180104	WG-1620-MW10A-20180104	WG-1620-MW10B-20180104	WG-1620-MW11A-20180103	
Sample Date:	01/04/2018	01/04/2018	01/04/2018	01/03/2018	
Parameters	Unit				
<b>Semi-volatile Organic Compounds</b>					
2-Methylnaphthalene	mg/L	<0.000019	<0.000019	--	<0.000019
Acenaphthene	mg/L	<0.000027	<0.000027	0.093	<0.000027
Acenaphthylene	mg/L	<0.000015	<0.000015	0.00068	<0.000015
Anthracene	mg/L	<0.000014	<0.000014	0.0052	<0.000014
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	<0.000097	<0.000057	<0.000059	<0.000073
Di-n-butylphthalate (DBP)	mg/L	--	--	<0.000020	--
Dibenzofuran	mg/L	<0.000020	<0.000020	0.048	<0.000020
Fluoranthene	mg/L	<0.000010	<0.000010	0.0053	<0.000010
Fluorene	mg/L	<0.000030	<0.000030	0.060	<0.000030
Naphthalene	mg/L	<0.000020	<0.000020	0.0013	<0.000020
Phenanthrene	mg/L	<0.000021	<0.000021	--	<0.000021
Phenol	mg/L	--	--	<0.000035	--
Pyrene	mg/L	<0.000019	<0.000019	0.0019	<0.000019



Table 2

**Analytical Results Summary**  
**HWPW - Semiannual Monitoring Event**  
**Union Pacific Railroad (UPRR)/ Houston TX-Wood Preserving Works**  
**Houston, Texas**  
**January 2018**

	Location ID:	MW-11B	P-10	P-10	P-12
	Sample Name:	WG-1620-MW11B-20180103	WG-1620-P10-20180104	WG-1620-FD02-20180104	WG-1620-P12-20180104
	Sample Date:	01/03/2018	01/04/2018	01/04/2018 Duplicate	01/04/2018
Parameters	Unit				
<b>Semi-volatile Organic Compounds</b>					
2-Methylnaphthalene	mg/L	--	--	--	--
Acenaphthene	mg/L	<0.000027	<0.000027	0.0033	<0.000027
Acenaphthylene	mg/L	<0.000015	<0.000015	<0.000015	<0.000015
Anthracene	mg/L	0.00010	<0.000014	0.00017	0.000036 J
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	<0.00010	<0.00024	<0.00017	<0.00012
Di-n-butylphthalate (DBP)	mg/L	<0.000045	<0.000042	<0.000034	<0.000022
Dibenzofuran	mg/L	<0.000020	0.00029	0.00093	<0.000020
Fluoranthene	mg/L	<0.000010	0.00017	0.00016	<0.000010
Fluorene	mg/L	<0.000030	0.00042	0.0012	<0.000030
Naphthalene	mg/L	<0.000020	<0.000020	0.0034	<0.000020
Phenanthrene	mg/L	--	--	--	--
Phenol	mg/L	<0.000035	<0.000035	0.0014	<0.000035
Pyrene	mg/L	<0.000019	<0.000019	<0.000019	0.000097 J

Notes:

< - Not detected at the associated reporting limit

J - Estimated concentration

"--" - Not Applicable

Table 3

**Analytical Methods**  
**HWPW - Semiannual Monitoring Event**  
**Union Pacific Railroad (UPRR)/ Houston TX-Wood Preserving Works**  
**Houston, Texas**  
**January 2018**

Parameter	Method	Matrix	Holding Time	
			Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
SVOCs	SW-846 8270	Water	14	40

## Notes:

SVOCs - Semi-volatile Organic Compounds

## Method References:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846,  
Third Edition, 1986, with subsequent revisions

**Table 4**

**Qualified Sample Data Due to Analyte Concentrations in the Field Blanks  
HWPW - Semiannual Monitoring Event  
Union Pacific Railroad (UPRR)/ Houston TX-Wood Preserving Works  
Houston, Texas  
January 2018**

<b>Parameter</b>	<b>Field Blank ID</b>	<b>Blank Date mm/dd/yyyy</b>	<b>Analyte</b>	<b>Blank Result</b>	<b>Associated Sample ID</b>	<b>Original Result</b>	<b>Qualified Result</b>	<b>Units</b>
SVOCs	WG-1620-FB01-20180103	01/03/2018	bis(2-Ethylhexyl)phthalate (DEHP)	0.00058	WG-1620-MW11A-20180103	0.000073 J	<0.000073	mg/L
					WG-1620-MW11B-20180103	0.00010 J	<0.00010	mg/L
			Di-n-butylphthalate (DBP)	0.000020 J	WG-1620-MW11B-20180103	0.000045 J	<0.000045	mg/L
SVOCs	WG-1620-FB02-20180104	01/04/2018	bis(2-Ethylhexyl)phthalate (DEHP)	0.00023	WG-1620-FD01-20180104	0.000085 J	<0.000085	mg/L
					WG-1620-FD02-20180104	0.00017 J	<0.00017	mg/L
					WG-1620-MW01A-20180104	0.000072 J	<0.000072	mg/L
					WG-1620-MW02-20180104	0.00016 J	<0.00016	mg/L
					WG-1620-MW07-20180104	0.000088 J	<0.000088	mg/L
					WG-1620-MW08-20180104	0.000097 J	<0.000097	mg/L
			Di-n-butylphthalate (DBP)	0.000022 J	WG-1620-MW10A-20180104	0.000057 J	<0.000057	mg/L
					WG-1620-MW10B-20180104	0.000059 J	<0.000059	mg/L
					WG-1620-P10-20180104	0.00024	<0.00024	mg/L
					WG-1620-P12-20180104	0.00012 J	<0.00012	mg/L
					WG-1620-FD02-20180104	0.000034 J	<0.000034	mg/L
					WG-1620-P10-20180104	0.000042 J	<0.000042	mg/L
	WG-1620-P12-20180104	0.000022 J	<0.000022	mg/L				

Notes:

SVOCs - Semi-volatile Organic Compounds

J - Estimated concentration

# Attachment A Laboratory NELAP Certificate



# Texas Commission on Environmental Quality



## NELAP - Recognized Laboratory Fields of Accreditation

ALS Laboratory Group, Environmental Services Division (Houston, Texas)

10450 Stancliff Road, Suite 210  
Houston, TX 77099-4338

Certificate: T104704231-17-18  
Expiration Date: 4/30/2018  
Issue Date: 5/1/2017

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Drinking Water*

Method EPA 1613

Analyte	AB	Analyte ID	Method ID
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	TX	9618	10120204



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**Matrix: Non-Potable Water**

<b>Method</b> EPA 1010			
<b>Analyte</b> Ignitability	<b>AB</b> TX	<b>Analyte ID</b> 1780	<b>Method ID</b> 10116606
<b>Method</b> EPA 110.1			
<b>Analyte</b> Color	<b>AB</b> TX	<b>Analyte ID</b> 1605	<b>Method ID</b> 10005206
<b>Method</b> EPA 120.1			
<b>Analyte</b> Conductivity	<b>AB</b> TX	<b>Analyte ID</b> 1610	<b>Method ID</b> 10006403
<b>Method</b> EPA 1311			
<b>Analyte</b> TCLP	<b>AB</b> TX	<b>Analyte ID</b> 849	<b>Method ID</b> 10118806
<b>Method</b> EPA 1312			
<b>Analyte</b> SPLP	<b>AB</b> TX	<b>Analyte ID</b> 850	<b>Method ID</b> 10119003
<b>Method</b> EPA 150.1			
<b>Analyte</b> pH	<b>AB</b> TX	<b>Analyte ID</b> 1900	<b>Method ID</b> 10008409
<b>Method</b> EPA 160.1			
<b>Analyte</b> Residue-filterable (TDS)	<b>AB</b> TX	<b>Analyte ID</b> 1955	<b>Method ID</b> 10009208
<b>Method</b> EPA 160.2			
<b>Analyte</b> Residue-nonfilterable (TSS)	<b>AB</b> TX	<b>Analyte ID</b> 1960	<b>Method ID</b> 10009606
<b>Method</b> EPA 160.3			
<b>Analyte</b> Residue-total (total solids)	<b>AB</b> TX	<b>Analyte ID</b> 1950	<b>Method ID</b> 10010001
<b>Method</b> EPA 160.4			
<b>Analyte</b> Residue-volatile	<b>AB</b> TX	<b>Analyte ID</b> 1970	<b>Method ID</b> 10010409
<b>Method</b> EPA 1613			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>



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**Matrix: Non-Potable Water**

1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	TX	9516	10120204
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	TX	9519	10120204
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-HpCDF)	TX	9420	10120204
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD)	TX	9426	10120204
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-HpCDF)	TX	9423	10120204
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-HxCDF)	TX	9471	10120204
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-HxCDD)	TX	9453	10120204
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-HxCDF)	TX	9474	10120204
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-HxCDD)	TX	9456	10120204
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-HxCDF)	TX	9477	10120204
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-HxCDD)	TX	9459	10120204
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-PeCDF)	TX	9543	10120204
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-PeCDD)	TX	9540	10120204
2,3,4,6,7,8-Hexachlorodibenzofuran (2,3,4,6,7,8-HxCDF)	TX	9480	10120204
2,3,4,7,8-Pentachlorodibenzofuran (2,3,4,7,8-PeCDF)	TX	9549	10120204
2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF)	TX	9612	10120204
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	TX	9618	10120204
Total Heptachlorodibenzofuran (Total HpCDF)	TX	9444	10120204
Total Heptachlorodibenzo-p-dioxin (Total HpCDD)	TX	9438	10120204
Total Hexachlorodibenzofuran (Total HxCDF)	TX	9483	10120204
Total Hexachlorodibenzo-p-dioxin (Total HxCDD)	TX	9468	10120204
Total Pentachlorodibenzofuran (Total PeCDF)	TX	9552	10120204
Total Pentachlorodibenzo-p-dioxin (Total PeCDD)	TX	9555	10120204
Total Tetrachlorodibenzofuran (Total TCDF)	TX	9615	10120204
Total Tetrachlorodibenzo-p-dioxin (Total TCDD)	TX	9609	10120204

**Method EPA 1664**

**Analyte**

n-Hexane Extractable Material (HEM) (O&G)

AB	Analyte ID	Method ID
TX	1803	10127807

**Method EPA 180.1**

**Analyte**

Turbidity

AB	Analyte ID	Method ID
TX	2055	10011606



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Matrix: *Non-Potable Water*

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605
Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Boron	TX	1025	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Strontium	TX	1160	10014605
Thallium	TX	1165	10014605
Tin	TX	1175	10014605
Titanium	TX	1180	10014605
Uranium	TX	3035	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605





# Texas Commission on Environmental Quality

## NELAP - Recognized Laboratory Fields of Accreditation



ALS Laboratory Group, Environmental Services Division (Houston, Texas)

10450 Stancliff Road, Suite 210  
Houston, TX 77099-4338

Certificate: T104704231-17-18  
Expiration Date: 4/30/2018

Issue Date: 5/1/2017

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**Matrix: Non-Potable Water**

**Method EPA 245.1**

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10036609

**Method EPA 300.0**

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053006
Chloride	TX	1575	10053006
Fluoride	TX	1730	10053006
Nitrate as N	TX	1810	10053006
Nitrate-nitrite	TX	1820	10053006
Nitrite as N	TX	1840	10053006
Orthophosphate as P	TX	1870	10053006
Sulfate	TX	2000	10053006

**Method EPA 305.1**

Analyte	AB	Analyte ID	Method ID
Acidity, as CaCO <sub>3</sub>	TX	1500	10054203

**Method EPA 310.1**

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO <sub>3</sub>	TX	1505	10054805

**Method EPA 335.1**

Analyte	AB	Analyte ID	Method ID
Amenable cyanide	TX	1510	10060001

**Method EPA 335.2**

Analyte	AB	Analyte ID	Method ID
Total cyanide	TX	1645	10060205

**Method EPA 335.3**

Analyte	AB	Analyte ID	Method ID
Total cyanide	TX	1645	10061004

**Method EPA 335.4**

Analyte	AB	Analyte ID	Method ID
Total cyanide	TX	1645	10061402



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**Matrix: Non-Potable Water**

Method	Analyte	AB	Analyte ID	Method ID
EPA 350.3	Ammonia as N	TX	1515	10064401
EPA 351.3	Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	TX	1790	10065802
EPA 360.1	Oxygen, dissolved	TX	1880	10069008
EPA 365.3	Orthophosphate as P	TX	1870	10070801
	Phosphorus	TX	1910	10070801
EPA 376.1	Sulfide	TX	2005	10074201
EPA 405.1	Biochemical oxygen demand (BOD)	TX	1530	10075602
	Carbonaceous BOD, CBOD	TX	1555	10075602
EPA 410.4	Chemical oxygen demand (COD)	TX	1565	10077200
EPA 415.1	Total Organic Carbon (TOC)	TX	2040	10078407
EPA 420.1	Total phenolics	TX	1905	10079400
EPA 420.4	Total phenolics	TX	1905	10080203



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**Matrix: Non-Potable Water**

**Method EPA 425.1**

Analyte	AB	Analyte ID	Method ID
Surfactants - MBAS	TX	2025	10080601

**Method EPA 602**

Analyte	AB	Analyte ID	Method ID
Benzene	TX	4375	10102202
Ethylbenzene	TX	4765	10102202
m+p-xylene	TX	5240	10102202
Methyl tert-butyl ether (MTBE)	TX	5000	10102202
o-Xylene	TX	5250	10102202
Toluene	TX	5140	10102202
Xylene (total)	TX	5260	10102202

**Method EPA 6020**

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10156408
Antimony	TX	1005	10156408
Arsenic	TX	1010	10156408
Barium	TX	1015	10156408
Beryllium	TX	1020	10156408
Boron	TX	1025	10156408
Cadmium	TX	1030	10156408
Calcium	TX	1035	10156408
Chromium	TX	1040	10156408
Cobalt	TX	1050	10156408
Copper	TX	1055	10156408
Iron	TX	1070	10156408
Lead	TX	1075	10156408
Lithium	TX	1080	10156408
Magnesium	TX	1085	10156408
Manganese	TX	1090	10156408
Molybdenum	TX	1100	10156408



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**Matrix: Non-Potable Water**

Nickel	TX	1105	10156408
Potassium	TX	1125	10156408
Selenium	TX	1140	10156408
Silver	TX	1150	10156408
Sodium	TX	1155	10156408
Strontium	TX	1160	10156408
Thallium	TX	1165	10156408
Tin	TX	1175	10156408
Titanium	TX	1180	10156408
Vanadium	TX	1185	10156408
Zinc	TX	1190	10156408

**Method EPA 608**

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	TX	7355	10103603
4,4'-DDE	TX	7360	10103603
4,4'-DDT	TX	7365	10103603
Aldrin	TX	7025	10103603
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10103603
alpha-Chlordane	TX	7240	10103603
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10103603
Chlordane (tech.)	TX	7250	10103603
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10103603
Dieldrin	TX	7470	10103603



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**Matrix: Non-Potable Water**

Endosulfan I	TX	7510	10103603
Endosulfan II	TX	7515	10103603
Endosulfan sulfate	TX	7520	10103603
Endrin	TX	7540	10103603
Endrin aldehyde	TX	7530	10103603
Endrin ketone	TX	7535	10103603
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10103603
gamma-Chlordane	TX	7245	10103603
Heptachlor	TX	7685	10103603
Heptachlor epoxide	TX	7690	10103603
Methoxychlor	TX	7810	10103603
Toxaphene (Chlorinated camphene)	TX	8250	10103603

**Method EPA 624**

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207
1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207
2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207



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**Matrix: Non-Potable Water**

Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207
Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207
Xylene (total)	TX	5260	10107207

**Method EPA 625**

Analyte	AB	Analyte ID	Method ID
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10107401
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401



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**Matrix: Non-Potable Water**

1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,4,5-Trichlorophenol	TX	6835	10107401
2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401
2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Anthracene	TX	5555	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401



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**Matrix: Non-Potable Water**

Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10107401
Butyl benzyl phthalate	TX	5670	10107401
Chrysene	TX	5855	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Diethyl phthalate	TX	6070	10107401
Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401





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**Matrix: Non-Potable Water**

Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401
<b>Method EPA 7196</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Chromium (VI)	TX	1045	10162206
<b>Method EPA 7470</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Mercury	TX	1095	10165603
<b>Method EPA 8011</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
1,2,3-Trichloropropane	TX	5180	10173009
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10173009
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10173009
<b>Method EPA 8015</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Diesel range organics (DRO)	TX	9369	10173203
Ethanol	TX	4750	10173203
Ethylene glycol	TX	4785	10173203
Gasoline range organics (GRO)	TX	9408	10173203
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10173203
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10173203
Methanol	TX	4930	10173203
n-Butyl alcohol (1-Butanol, n-Butanol)	TX	4425	10173203
n-Propanol (1-Propanol)	TX	5055	10173203
Propylene Glycol	TX	6657	10173203
tert-Butyl alcohol	TX	4420	10173203
<b>Method EPA 8021</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Benzene	TX	4375	10174400
Ethylbenzene	TX	4765	10174400



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**Matrix: Non-Potable Water**

m+p-xylene	TX	5240	10174400
Methyl tert-butyl ether (MTBE)	TX	5000	10174400
o-Xylene	TX	5250	10174400
Toluene	TX	5140	10174400
Xylene (total)	TX	5260	10174400

**Method EPA 8081**

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	TX	7355	10178402
4,4'-DDE	TX	7360	10178402
4,4'-DDT	TX	7365	10178402
Aldrin	TX	7025	10178402
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178402
alpha-Chlordane	TX	7240	10178402
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178402
Chlordane (tech.)	TX	7250	10178402
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178402
Dieldrin	TX	7470	10178402
Endosulfan I	TX	7510	10178402
Endosulfan II	TX	7515	10178402
Endosulfan sulfate	TX	7520	10178402
Endrin	TX	7540	10178402
Endrin aldehyde	TX	7530	10178402
Endrin ketone	TX	7535	10178402
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178402
gamma-Chlordane	TX	7245	10178402
Heptachlor	TX	7685	10178402
Heptachlor epoxide	TX	7690	10178402
Hexachlorobenzene	TX	6275	10178402
Methoxychlor	TX	7810	10178402
Mirex	TX	7870	10178402



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**Matrix: Non-Potable Water**

Toxaphene (Chlorinated camphene)	TX	8250	10178402
<b>Method EPA 8082</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Aroclor-1016 (PCB-1016)	TX	8880	10179201
Aroclor-1221 (PCB-1221)	TX	8885	10179201
Aroclor-1232 (PCB-1232)	TX	8890	10179201
Aroclor-1242 (PCB-1242)	TX	8895	10179201
Aroclor-1248 (PCB-1248)	TX	8900	10179201
Aroclor-1254 (PCB-1254)	TX	8905	10179201
Aroclor-1260 (PCB-1260)	TX	8910	10179201
PCBs (total)	TX	8870	10179201
<b>Method EPA 8151</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
2,4,5-T	TX	8655	10183003
2,4-D	TX	8545	10183003
2,4-DB	TX	8560	10183003
Dalapon	TX	8555	10183003
Dicamba	TX	8595	10183003
Dichloroprop (Dichloroprop, Weedone)	TX	8605	10183003
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183003
MCPA	TX	7775	10183003
MCPP	TX	7780	10183003
Silvex (2,4,5-TP)	TX	8650	10183003
<b>Method EPA 8260</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
1,1,1,2-Tetrachloroethane	TX	5105	10184404
1,1,1-Trichloroethane	TX	5160	10184404
1,1,2,2-Tetrachloroethane	TX	5110	10184404
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184404
1,1,2-Trichloroethane	TX	5165	10184404
1,1-Dichloroethane	TX	4630	10184404



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**Matrix: Non-Potable Water**

1,1-Dichloroethylene	TX	4640	10184404
1,1-Dichloropropene	TX	4670	10184404
1,2,3-Trichlorobenzene	TX	5150	10184404
1,2,3-Trichloropropane	TX	5180	10184404
1,2,4-Trichlorobenzene	TX	5155	10184404
1,2,4-Trimethylbenzene	TX	5210	10184404
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184404
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184404
1,2-Dichlorobenzene	TX	4610	10184404
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184404
1,2-Dichloropropane	TX	4655	10184404
1,3,5-Trimethylbenzene	TX	5215	10184404
1,3-Dichlorobenzene	TX	4615	10184404
1,3-Dichloropropane	TX	4660	10184404
1,4-Dichlorobenzene	TX	4620	10184404
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184404
1-Chlorohexane	TX	4510	10184404
1-Propanol	TX	5060	10184404
2,2-Dichloropropane	TX	4665	10184404
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184404
2-Chloroethyl vinyl ether	TX	4500	10184404
2-Chlorotoluene	TX	4535	10184404
2-Hexanone (MBK)	TX	4860	10184404
2-Pentanone	TX	5045	10184404
4-Chlorotoluene	TX	4540	10184404
4-Isopropyltoluene (p-Cymene)	TX	4915	10184404
4-Methyl-2-pentanone (MIBK)	TX	4995	10184404
Acetone (2-Propanone)	TX	4315	10184404
Acetonitrile	TX	4320	10184404
Acrolein (Propenal)	TX	4325	10184404



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Houston, TX 77099-4338

Certificate: T104704231-17-18  
Expiration Date: 4/30/2018

Issue Date: 5/1/2017

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**Matrix: Non-Potable Water**

Acrylonitrile	TX	4340	10184404
Allyl alcohol	TX	4350	10184404
Allyl chloride (3-Chloropropene)	TX	4355	10184404
Benzene	TX	4375	10184404
Benzyl chloride	TX	5635	10184404
Bromobenzene	TX	4385	10184404
Bromochloromethane	TX	4390	10184404
Bromodichloromethane	TX	4395	10184404
Bromoform	TX	4400	10184404
Carbon disulfide	TX	4450	10184404
Carbon tetrachloride	TX	4455	10184404
Chlorobenzene	TX	4475	10184404
Chlorodibromomethane	TX	4575	10184404
Chloroethane (Ethyl chloride)	TX	4485	10184404
Chloroform	TX	4505	10184404
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184404
cis-1,2-Dichloroethylene	TX	4645	10184404
cis-1,3-Dichloropropene	TX	4680	10184404
Dibromofluoromethane	TX	4590	10184404
Dibromomethane (Methylene bromide)	TX	4595	10184404
Dichlorodifluoromethane (Freon-12)	TX	4625	10184404
Diethyl ether	TX	4725	10184404
Di-isopropylether (DIPE)	TX	9375	10184404
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184404
Ethanol	TX	4750	10184404
Ethyl acetate	TX	4755	10184404
Ethyl methacrylate	TX	4810	10184404
Ethylbenzene	TX	4765	10184404
Ethylene oxide	TX	4795	10184404
Ethyl-t-butylether (ETBE) (2-Ethoxy-2-methylpropane)	TX	4770	10184404



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**Matrix: Non-Potable Water**

Hexachlorobutadiene	TX	4835	10184404
Iodomethane (Methyl iodide)	TX	4870	10184404
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184404
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184404
Isopropylbenzene (Cumene)	TX	4900	10184404
m+p-xylene	TX	5240	10184404
Methacrylonitrile	TX	4925	10184404
Methyl acetate	TX	4940	10184404
Methyl acrylate	TX	4945	10184404
Methyl bromide (Bromomethane)	TX	4950	10184404
Methyl chloride (Chloromethane)	TX	4960	10184404
Methyl methacrylate	TX	4990	10184404
Methyl tert-butyl ether (MTBE)	TX	5000	10184404
Methylcyclohexane	TX	4965	10184404
Methylene chloride (Dichloromethane)	TX	4975	10184404
Naphthalene	TX	5005	10184404
n-Butyl alcohol (1-Butanol, n-Butanol)	TX	4425	10184404
n-Butylbenzene	TX	4435	10184404
n-Propylbenzene	TX	5090	10184404
o-Xylene	TX	5250	10184404
Pentachloroethane	TX	5035	10184404
Propionitrile (Ethyl cyanide)	TX	5080	10184404
Pyridine	TX	5095	10184404
sec-Butylbenzene	TX	4440	10184404
Styrene	TX	5100	10184404
T-amylmethylether (TAME)	TX	4370	10184404
tert-Butyl alcohol	TX	4420	10184404
tert-Butylbenzene	TX	4445	10184404
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184404
Toluene	TX	5140	10184404



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**Matrix: Non-Potable Water**

trans-1,2-Dichloroethylene	TX	4700	10184404
trans-1,3-Dichloropropylene	TX	4685	10184404
trans-1,4-Dichloro-2-butene	TX	4605	10184404
Trichloroethene (Trichloroethylene)	TX	5170	10184404
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184404
Vinyl acetate	TX	5225	10184404
Vinyl chloride	TX	5235	10184404
Xylene (total)	TX	5260	10184404

**Method EPA 8270**

Analyte	AB	Analyte ID	Method ID
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185203
1,2,4,5-Tetrachlorobenzene	TX	6715	10185203
1,2,4-Trichlorobenzene	TX	5155	10185203
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10185203
1,2-Dichlorobenzene	TX	4610	10185203
1,2-Dinitrobenzene	TX	6155	10185203
1,2-Diphenylhydrazine	TX	6220	10185203
1,3,5-Trinitrobenzene (1,3,5-TNB)	TX	6885	10185203
1,3-Dichlorobenzene	TX	4615	10185203
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185203
1,4-Dichlorobenzene	TX	4620	10185203
1,4-Dinitrobenzene	TX	6165	10185203
1,4-Naphthoquinone	TX	6420	10185203
1,4-Phenylenediamine	TX	6630	10185203
1-Chloronaphthalene	TX	5790	10185203
1-Naphthylamine	TX	6425	10185203
2,3,4,6-Tetrachlorophenol	TX	6735	10185203
2,4,5-Trichlorophenol	TX	6835	10185203
2,4,5-Trimethylaniline	TX	6880	10185203
2,4,6-Trichlorophenol	TX	6840	10185203



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**Matrix: Non-Potable Water**

2,4-Diaminotoluene	TX	5880	10185203
2,4-Dichlorophenol	TX	6000	10185203
2,4-Dimethylphenol	TX	6130	10185203
2,4-Dinitrophenol	TX	6175	10185203
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185203
2,6-Dichlorophenol	TX	6005	10185203
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185203
2-Acetylamino fluorene	TX	5515	10185203
2-Chloronaphthalene	TX	5795	10185203
2-Chlorophenol	TX	5800	10185203
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185203
2-Methylaniline (o-Toluidine)	TX	5145	10185203
2-Methylnaphthalene	TX	6385	10185203
2-Methylphenol (o-Cresol)	TX	6400	10185203
2-Naphthylamine	TX	6430	10185203
2-Nitroaniline	TX	6460	10185203
2-Nitrophenol	TX	6490	10185203
2-Picoline (2-Methylpyridine)	TX	5050	10185203
3,3'-Dichlorobenzidine	TX	5945	10185203
3,3'-Dimethylbenzidine	TX	6120	10185203
3-Methylcholanthrene	TX	6355	10185203
3-Methylphenol (m-Cresol)	TX	6405	10185203
3-Nitroaniline	TX	6465	10185203
4-Aminobiphenyl	TX	5540	10185203
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185203
4-Chloro-3-methylphenol	TX	5700	10185203
4-Chloroaniline	TX	5745	10185203
4-Chlorophenyl phenylether	TX	5825	10185203
4-Dimethyl aminoazobenzene	TX	6105	10185203
4-Methylphenol (p-Cresol)	TX	6410	10185203





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**Matrix: Non-Potable Water**

4-Nitroaniline	TX	6470	10185203
4-Nitrobiphenyl	TX	6480	10185203
4-Nitrophenol	TX	6500	10185203
4-Nitroquinoline-1-oxide	TX	6510	10185203
5-Chloro-2-methylaniline	TX	5695	10185203
5-Nitro-o-toluidine	TX	6570	10185203
7,12-Dimethylbenz(a) anthracene	TX	6115	10185203
a-a-Dimethylphenethylamine	TX	6125	10185203
Acenaphthene	TX	5500	10185203
Acenaphthylene	TX	5505	10185203
Acetophenone	TX	5510	10185203
Aniline	TX	5545	10185203
Anthracene	TX	5555	10185203
Aramite	TX	5560	10185203
Atrazine	TX	7065	10185203
Azinphos-methyl (Guthion)	TX	7075	10185203
Azobenzene	TX	5562	10185203
Benzenethiol (Thiophenol)	TX	6750	10185203
Benzidine	TX	5595	10185203
Benzo(a)anthracene	TX	5575	10185203
Benzo(a)pyrene	TX	5580	10185203
Benzo(b)fluoranthene	TX	5585	10185203
Benzo(e)pyrene	TX	5605	10185203
Benzo(g,h,i)perylene	TX	5590	10185203
Benzo(k)fluoranthene	TX	5600	10185203
Benzoic acid	TX	5610	10185203
Benzyl alcohol	TX	5630	10185203
Biphenyl	TX	5640	10185203
bis(2-Chloroethoxy)methane	TX	5760	10185203
bis(2-Chloroethyl) ether	TX	5765	10185203



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**Matrix: Non-Potable Water**

bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185203
Butyl benzyl phthalate	TX	5670	10185203
Caprolactam	TX	7180	10185203
Captan	TX	7190	10185203
Carbaryl (Sevin)	TX	7195	10185203
Carbazole	TX	5680	10185203
Carbophenothion	TX	7220	10185203
Chlorobenzilate	TX	7260	10185203
Chrysene	TX	5855	10185203
Coumaphos	TX	7315	10185203
Demeton	TX	7390	10185203
Demeton	TX	7390	10185203
Demeton-o	TX	7395	10185203
Demeton-s	TX	7385	10185203
Diallate	TX	7405	10185203
Dibenz(a,h) anthracene	TX	5895	10185203
Dibenz(a,j) acridine	TX	5900	10185203
Dibenzofuran	TX	5905	10185203
Dichlorvos (DDVP, Dichlorvos)	TX	8610	10185203
Diethyl phthalate	TX	6070	10185203
Dimethoate	TX	7475	10185203
Dimethoate	TX	7475	10185203
Dimethyl phthalate	TX	6135	10185203
Di-n-butyl phthalate	TX	5925	10185203
Di-n-octyl phthalate	TX	6200	10185203
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10185203
Dioxathion	TX	7495	10185203
Diphenylamine	TX	6205	10185203
Disulfoton	TX	8625	10185203
Ethion	TX	7565	10185203



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**Matrix: Non-Potable Water**

Ethyl methanesulfonate	TX	6260	10185203
Famphur	TX	7580	10185203
Fluoranthene	TX	6265	10185203
Fluorene	TX	6270	10185203
Hexachlorobenzene	TX	6275	10185203
Hexachlorobutadiene	TX	4835	10185203
Hexachlorocyclopentadiene	TX	6285	10185203
Hexachloroethane	TX	4840	10185203
Hexachlorophene	TX	6290	10185203
Hexachloropropene	TX	6295	10185203
Indeno(1,2,3-cd) pyrene	TX	6315	10185203
Isodrin	TX	7725	10185203
Isophorone	TX	6320	10185203
Isosafrole	TX	6325	10185203
Kepone	TX	7740	10185203
Maleic anhydride	TX	6335	10185203
Methapyrilene	TX	6345	10185203
Methyl methanesulfonate	TX	6375	10185203
Methyl parathion (Parathion, methyl)	TX	7825	10185203
Mevinphos	TX	7850	10185203
Naled	TX	7905	10185203
Naphthalene	TX	5005	10185203
Nitrobenzene	TX	5015	10185203
n-Nitrosodiethylamine	TX	6525	10185203
n-Nitrosodimethylamine	TX	6530	10185203
n-Nitrosodi-n-butylamine	TX	5025	10185203
n-Nitrosodi-n-propylamine	TX	6545	10185203
n-Nitrosodiphenylamine	TX	6535	10185203
n-Nitrosomethylethylamine	TX	6550	10185203
n-Nitrosomorpholine	TX	6555	10185203



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**Matrix: Non-Potable Water**

n-Nitrosopiperidine	TX	6560	10185203
n-Nitrosopyrrolidine	TX	6565	10185203
o,o,o-Triethyl phosphorothioate	TX	8290	10185203
o-Anisidine	TX	5550	10185203
Parathion, ethyl	TX	7955	10185203
p-Cresidine	TX	5860	10185203
Pentachlorobenzene	TX	6590	10185203
Pentachloronitrobenzene (PCNB)	TX	6600	10185203
Pentachlorophenol	TX	6605	10185203
Phenacetin	TX	6610	10185203
Phenanthrene	TX	6615	10185203
Phenol	TX	6625	10185203
Phorate	TX	7985	10185203
Phosmet (Imidan)	TX	8000	10185203
Phthalic anhydride	TX	6640	10185203
Pronamide (Kerb)	TX	6650	10185203
Pyrene	TX	6665	10185203
Pyridine	TX	5095	10185203
Quinoline	TX	6670	10185203
Resorcinol	TX	6680	10185203
Safrole	TX	6685	10185203
Sulfotepp	TX	8155	10185203
Terbufos	TX	8185	10185203
Tetrachlorvinphos (Stirophos, Gardona)	TX	8197	10185203
Thionazin (Zinophos)	TX	8235	10185203
Toluene diisocyanate	TX	6775	10185203
Trifluralin (Treflan)	TX	8295	10185203

**Method EPA 8280**

Analyte	AB	Analyte ID	Method ID
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	TX	9516	10186808



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**Matrix: Non-Potable Water**

1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	TX	9519	10186808
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-HpCDF)	TX	9420	10186808
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD)	TX	9426	10186808
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-HpCDF)	TX	9423	10186808
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-HxCDF)	TX	9471	10186808
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-HxCDD)	TX	9453	10186808
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-HxCDF)	TX	9474	10186808
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-HxCDD)	TX	9456	10186808
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-HxCDF)	TX	9477	10186808
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-HxCDD)	TX	9459	10186808
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-PeCDF)	TX	9543	10186808
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-PeCDD)	TX	9540	10186808
2,3,4,6,7,8-Hexachlorodibenzofuran (2,3,4,6,7,8-HxCDF)	TX	9480	10186808
2,3,4,7,8-Pentachlorodibenzofuran (2,3,4,7,8-PeCDF)	TX	9549	10186808
2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF)	TX	9612	10186808
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	TX	9618	10186808
Total Heptachlorodibenzofuran (Total HpCDF)	TX	9444	10186808
Total Heptachlorodibenzo-p-dioxin (Total HpCDD)	TX	9438	10186808
Total Hexachlorodibenzofuran (Total HxCDF)	TX	9483	10186808
Total Hexachlorodibenzo-p-dioxin (Total HxCDD)	TX	9468	10186808
Total Pentachlorodibenzofuran (Total PeCDF)	TX	9552	10186808
Total Pentachlorodibenzo-p-dioxin (Total PeCDD)	TX	9555	10186808
Total Tetrachlorodibenzofuran (Total TCDF)	TX	9615	10186808
Total Tetrachlorodibenzo-p-dioxin (Total TCDD)	TX	9609	10186808

**Method EPA 8290**

Analyte	AB	Analyte ID	Method ID
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	TX	9516	10187209
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	TX	9519	10187209
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-HpCDF)	TX	9420	10187209
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD)	TX	9426	10187209



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**Matrix: Non-Potable Water**

1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-HpCDF)	TX	9423	10187209
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-HxCDF)	TX	9471	10187209
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-HxCDD)	TX	9453	10187209
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-HxCDF)	TX	9474	10187209
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-HxCDD)	TX	9456	10187209
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-HxCDF)	TX	9477	10187209
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-HxCDD)	TX	9459	10187209
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-PeCDF)	TX	9543	10187209
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-PeCDD)	TX	9540	10187209
2,3,4,6,7,8-Hexachlorodibenzofuran (2,3,4,6,7,8-HxCDF)	TX	9480	10187209
2,3,4,7,8-Pentachlorodibenzofuran (2,3,4,7,8-PeCDF)	TX	9549	10187209
2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF)	TX	9612	10187209
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	TX	9618	10187209
Total Heptachlorodibenzofuran (Total HpCDF)	TX	9444	10187209
Total Heptachlorodibenzo-p-dioxin (Total HpCDD)	TX	9438	10187209
Total Hexachlorodibenzofuran (Total HxCDF)	TX	9483	10187209
Total Hexachlorodibenzo-p-dioxin (Total HxCDD)	TX	9468	10187209
Total Pentachlorodibenzofuran (Total PeCDF)	TX	9552	10187209
Total Pentachlorodibenzo-p-dioxin (Total PeCDD)	TX	9555	10187209
Total Tetrachlorodibenzofuran (Total TCDF)	TX	9615	10187209
Total Tetrachlorodibenzo-p-dioxin (Total TCDD)	TX	9609	10187209

**Method EPA 8315**

Analyte	AB	Analyte ID	Method ID
Formaldehyde	TX	4815	10187801

**Method EPA 8316**

Analyte	AB	Analyte ID	Method ID
Acrylamide	TX	4330	10188202

**Method EPA 8330**

Analyte	AB	Analyte ID	Method ID
1,3,5-Trinitrobenzene (1,3,5-TNB)	TX	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10189807



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Houston, TX 77099-4338

Certificate: T104704231-17-18  
Expiration Date: 4/30/2018  
Issue Date: 5/1/2017

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**Matrix: Non-Potable Water**

2,4,6-Trinitrotoluene (2,4,6-TNT)	TX	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	TX	9303	10189807
2-Nitrotoluene	TX	9507	10189807
3-Nitrotoluene	TX	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	TX	9306	10189807
4-Nitrotoluene	TX	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	TX	6415	10189807
Nitrobenzene	TX	5015	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	TX	9522	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	TX	9432	10189807
<b>Method EPA 9012</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Amenable cyanide	TX	1510	10243228
Total cyanide	TX	1645	10243228
<b>Method EPA 9014</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Amenable cyanide	TX	1510	10193803
Total Cyanide	TX	1635	10193803
<b>Method EPA 9040</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
pH	TX	1900	10196802
<b>Method EPA 9050</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Conductivity	TX	1610	10198604
<b>Method EPA 9056</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209



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**Matrix: Non-Potable Water**

Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Orthophosphate as P	TX	1870	10199209
Sulfate	TX	2000	10199209
<b>Method EPA 9060</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Total Organic Carbon (TOC)	TX	2040	10200201
<b>Method EPA 9065</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Total phenolics	TX	1905	10200405
<b>Method EPA 9066</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Total phenolics	TX	1905	10200609
<b>Method EPA RSK 175</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
2-methylpropane (Isobutane)	TX	4942	10212905
Ethane	TX	4747	10212905
Ethene	TX	4752	10212905
Methane	TX	4926	10212905
n-Butane	TX	5007	10212905
n-Propane	TX	5029	10212905
<b>Method HACH 8000</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Chemical oxygen demand (COD)	TX	1565	60003001
<b>Method SM 2120 B</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Color	TX	1605	20223807
<b>Method SM 2310 B (4a)</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Acidity, as CaCO <sub>3</sub>	TX	1500	20002806





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**Matrix: Non-Potable Water**

Method	Analyte	AB	Analyte ID	Method ID
SM 2320 B	Alkalinity as CaCO <sub>3</sub>	TX	1505	20045005
SM 2340 B	Total hardness as CaCO <sub>3</sub>	TX	1755	20046008
SM 2510 B	Conductivity	TX	1610	20048004
SM 2540 B	Residue-total (total solids)	TX	1950	20004608
SM 2540 C	Residue-filterable (TDS)	TX	1955	20049803
SM 2540 D	Residue-nonfilterable (TSS)	TX	1960	20004802
SM 3500-Cr B	Chromium (VI)	TX	1045	20065809
SM 4500-Cl F	Total residual chlorine	TX	1940	20080482
SM 4500-CN <sup>-</sup> C	Total cyanide	TX	1645	20020808
SM 4500-CN <sup>-</sup> E	Total Cyanide	TX	1635	20021209
SM 4500-CN <sup>-</sup> G	Analyte	AB	Analyte ID	Method ID



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**Matrix: Non-Potable Water**

Amenable cyanide	TX	1510	20021607
<b>Method</b> SM 4500-H+ B			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
pH	TX	1900	20104603
<b>Method</b> SM 4500-NH3 D			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Ammonia as N	TX	1515	20108809
Kjeldahl Nitrogen (Total Kjeldahl Nitrogen-TKN)	TX	1790	20108809
<b>Method</b> SM 4500-NH3 F			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Ammonia as N	TX	1515	20023001
<b>Method</b> SM 4500-O G			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Oxygen, dissolved	TX	1880	20025405
<b>Method</b> SM 4500-P E			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803
<b>Method</b> SM 4500-S2 <sup>-</sup> D			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Sulfide	TX	2005	20125400
<b>Method</b> SM 4500-S2 <sup>-</sup> F			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Sulfide	TX	2005	20126209
<b>Method</b> SM 4500-SiO2 D			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Silica as SiO2	TX	1990	20127202
<b>Method</b> SM 4500-SO3 <sup>-</sup> B			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Sulfite	TX	2015	20026806
<b>Method</b> SM 5210 B			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>



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**Matrix: *Non-Potable Water***

Biochemical oxygen demand (BOD)	TX	1530	20027401
Carbonaceous BOD, CBOD	TX	1555	20027401
<b>Method</b> SM 5310 B			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Total Organic Carbon (TOC)	TX	2040	20137206
<b>Method</b> SM 5310 C			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Total Organic Carbon (TOC)	TX	2040	20138209
<b>Method</b> SM 5540 C			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Surfactants - MBAS	TX	2025	20144405
<b>Method</b> TCEQ 1005			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208



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**Matrix: Solid & Chemical Materials**

Method	AB	Analyte ID	Method ID
<b>Method</b> ASTM D2216			
<b>Analyte</b> Moisture	TX	10337	ASTM D2216-05
<b>Method</b> EPA 1010			
<b>Analyte</b> Ignitability	TX	1780	10116606
<b>Method</b> EPA 1030			
<b>Analyte</b> Ignitability	TX	1780	10117201
<b>Method</b> EPA 1311			
<b>Analyte</b> TCLP	TX	849	10118806
<b>Method</b> EPA 1312			
<b>Analyte</b> SPLP	TX	850	10119003
<b>Method</b> EPA 1668			
<b>Analyte</b> Decachlorobiphenyls	TX	10332	10129609
Dichlorobiphenyls	TX	464	10129609
Heptachlorobiphenyls	TX	486	10129609
Hexachlorobiphenyls	TX	487	10129609
Monochlorobiphenyls	TX	501	10129609
Nonachlorobiphenyls	TX	507	10129609
Octachlorobiphenyls	TX	508	10129609
Pentachlorobiphenyls	TX	515	10129609
Tetrachlorobiphenyls	TX	528	10129609
Trichlorobiphenyls	TX	541	10129609
<b>Method</b> EPA 200.8			
<b>Analyte</b> Uranium	TX	3035	10014605



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**Matrix: Solid & Chemical Materials**

**Method EPA 300.0**

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053006
Chloride	TX	1575	10053006
Fluoride	TX	1730	10053006
Nitrate as N	TX	1810	10053006
Nitrate-nitrite	TX	1820	10053006
Nitrite as N	TX	1840	10053006
Orthophosphate as P	TX	1870	10053006
Sulfate	TX	2000	10053006

**Method EPA 310.1**

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO3	TX	1505	10054805

**Method EPA 350.3**

Analyte	AB	Analyte ID	Method ID
Ammonia as N	TX	1515	10064401

**Method EPA 365.3**

Analyte	AB	Analyte ID	Method ID
Orthophosphate as P	TX	1870	10070801
Phosphorus	TX	1910	10070801

**Method EPA 6020**

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10156204
Antimony	TX	1005	10156204
Arsenic	TX	1010	10156204
Barium	TX	1015	10156204
Beryllium	TX	1020	10156204
Boron	TX	1025	10156204
Cadmium	TX	1030	10156204
Calcium	TX	1035	10156204
Chromium	TX	1040	10156204



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**Matrix: Solid & Chemical Materials**

Cobalt	TX	1050	10156204
Copper	TX	1055	10156204
Iron	TX	1070	10156204
Lead	TX	1075	10156204
Lithium	TX	1080	10156204
Magnesium	TX	1085	10156204
Manganese	TX	1090	10156204
Molybdenum	TX	1100	10156204
Nickel	TX	1105	10156204
Potassium	TX	1125	10156204
Selenium	TX	1140	10156204
Silver	TX	1150	10156204
Sodium	TX	1155	10156204
Strontium	TX	1160	10156204
Thallium	TX	1165	10156204
Tin	TX	1175	10156204
Titanium	TX	1180	10156204
Vanadium	TX	1185	10156204
Zinc	TX	1190	10156204
<b>Method EPA 7196</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Chromium (VI)	TX	1045	10162206
<b>Method EPA 7470</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Mercury	TX	1095	10165603
<b>Method EPA 7471</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Mercury	TX	1095	10166004
<b>Method EPA 8015</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Diesel range organics (DRO)	TX	9369	10173203



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**Matrix: Solid & Chemical Materials**

Ethanol	TX	4750	10173203
Ethylene glycol	TX	4785	10173203
Gasoline range organics (GRO)	TX	9408	10173203
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10173203
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10173203
Methanol	TX	4930	10173203
n-Butyl alcohol (1-Butanol, n-Butanol)	TX	4425	10173203
n-Propanol (1-Propanol)	TX	5055	10173203
Propylene Glycol	TX	6657	10173203
tert-Butyl alcohol	TX	4420	10173203

**Method EPA 8021**

Analyte	AB	Analyte ID	Method ID
Benzene	TX	4375	10174400
Ethylbenzene	TX	4765	10174400
m+p-xylene	TX	5240	10174400
Methyl tert-butyl ether (MTBE)	TX	5000	10174400
o-Xylene	TX	5250	10174400
Toluene	TX	5140	10174400
Xylene (total)	TX	5260	10174400

**Method EPA 8081**

Analyte	AB	Analyte ID	Method ID
4,4'-DDD	TX	7355	10178402
4,4'-DDE	TX	7360	10178402
4,4'-DDT	TX	7365	10178402
Aldrin	TX	7025	10178402
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10178402
alpha-Chlordane	TX	7240	10178402
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10178402
Chlordane (tech.)	TX	7250	10178402
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10178402
Dieldrin	TX	7470	10178402



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**Matrix: Solid & Chemical Materials**

Endosulfan I	TX	7510	10178402
Endosulfan II	TX	7515	10178402
Endosulfan sulfate	TX	7520	10178402
Endrin	TX	7540	10178402
Endrin aldehyde	TX	7530	10178402
Endrin ketone	TX	7535	10178402
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10178402
gamma-Chlordane	TX	7245	10178402
Heptachlor	TX	7685	10178402
Heptachlor epoxide	TX	7690	10178402
Methoxychlor	TX	7810	10178402
Mirex	TX	7870	10178402
Toxaphene (Chlorinated camphene)	TX	8250	10178402

**Method EPA 8082**

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	TX	8880	10179201
Aroclor-1221 (PCB-1221)	TX	8885	10179201
Aroclor-1232 (PCB-1232)	TX	8890	10179201
Aroclor-1242 (PCB-1242)	TX	8895	10179201
Aroclor-1248 (PCB-1248)	TX	8900	10179201
Aroclor-1254 (PCB-1254)	TX	8905	10179201
Aroclor-1260 (PCB-1260)	TX	8910	10179201
PCBs (total)	TX	8870	10179201

**Method EPA 8151**

Analyte	AB	Analyte ID	Method ID
2,4,5-T	TX	8655	10183003
2,4-D	TX	8545	10183003
2,4-DB	TX	8560	10183003
Dalapon	TX	8555	10183003
Dicamba	TX	8595	10183003
Dichloroprop (Dichloroprop, Weedone)	TX	8605	10183003





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**Matrix: Solid & Chemical Materials**

Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10183003
MCPA	TX	7775	10183003
MCPP	TX	7780	10183003
Silvex (2,4,5-TP)	TX	8650	10183003

**Method EPA 8260**

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184404
1,1,1-Trichloroethane	TX	5160	10184404
1,1,2,2-Tetrachloroethane	TX	5110	10184404
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184404
1,1,2-Trichloroethane	TX	5165	10184404
1,1-Dichloroethane	TX	4630	10184404
1,1-Dichloroethylene	TX	4640	10184404
1,1-Dichloropropene	TX	4670	10184404
1,2,3-Trichlorobenzene	TX	5150	10184404
1,2,3-Trichloropropane	TX	5180	10184404
1,2,4-Trichlorobenzene	TX	5155	10184404
1,2,4-Trimethylbenzene	TX	5210	10184404
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184404
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184404
1,2-Dichlorobenzene	TX	4610	10184404
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184404
1,2-Dichloropropane	TX	4655	10184404
1,3,5-Trimethylbenzene	TX	5215	10184404
1,3-Dichlorobenzene	TX	4615	10184404
1,3-Dichloropropane	TX	4660	10184404
1,4-Dichlorobenzene	TX	4620	10184404
1,4-Dioxane (1,4-Diethyleneoxide)	TX	4735	10184404
1-Chlorohexane	TX	4510	10184404
1-Propanol	TX	5060	10184404



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**Matrix: Solid & Chemical Materials**

2,2-Dichloropropane	TX	4665	10184404
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184404
2-Chloroethyl vinyl ether	TX	4500	10184404
2-Chlorotoluene	TX	4535	10184404
2-Hexanone (MBK)	TX	4860	10184404
4-Chlorotoluene	TX	4540	10184404
4-Isopropyltoluene (p-Cymene)	TX	4915	10184404
4-Methyl-2-pentanone (MIBK)	TX	4995	10184404
Acetone (2-Propanone)	TX	4315	10184404
Acetonitrile	TX	4320	10184404
Acrolein (Propenal)	TX	4325	10184404
Acrylonitrile	TX	4340	10184404
Allyl chloride (3-Chloropropene)	TX	4355	10184404
Benzene	TX	4375	10184404
Benzyl chloride	TX	5635	10184404
Bromobenzene	TX	4385	10184404
Bromochloromethane	TX	4390	10184404
Bromodichloromethane	TX	4395	10184404
Bromoform	TX	4400	10184404
Carbon disulfide	TX	4450	10184404
Carbon tetrachloride	TX	4455	10184404
Chlorobenzene	TX	4475	10184404
Chlorodibromomethane	TX	4575	10184404
Chloroethane (Ethyl chloride)	TX	4485	10184404
Chloroform	TX	4505	10184404
Chloroprene (2-Chloro-1,3-butadiene)	TX	4525	10184404
cis-1,2-Dichloroethylene	TX	4645	10184404
cis-1,3-Dichloropropene	TX	4680	10184404
Dibromofluoromethane	TX	4590	10184404
Dibromomethane (Methylene bromide)	TX	4595	10184404



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**Matrix: Solid & Chemical Materials**

Dichlorodifluoromethane (Freon-12)	TX	4625	10184404
Diethyl ether	TX	4725	10184404
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	TX	4745	10184404
Ethanol	TX	4750	10184404
Ethyl acetate	TX	4755	10184404
Ethyl methacrylate	TX	4810	10184404
Ethylbenzene	TX	4765	10184404
Ethylene oxide	TX	4795	10184404
Hexachlorobutadiene	TX	4835	10184404
Iodomethane (Methyl iodide)	TX	4870	10184404
Isobutyl alcohol (2-Methyl-1-propanol)	TX	4875	10184404
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184404
Isopropylbenzene (Cumene)	TX	4900	10184404
m+p-xylene	TX	5240	10184404
Methacrylonitrile	TX	4925	10184404
Methyl acetate	TX	4940	10184404
Methyl acrylate	TX	4945	10184404
Methyl bromide (Bromomethane)	TX	4950	10184404
Methyl chloride (Chloromethane)	TX	4960	10184404
Methyl methacrylate	TX	4990	10184404
Methyl tert-butyl ether (MTBE)	TX	5000	10184404
Methylcyclohexane	TX	4965	10184404
Methylene chloride (Dichloromethane)	TX	4975	10184404
Naphthalene	TX	5005	10184404
n-Butyl alcohol (1-Butanol, n-Butanol)	TX	4425	10184404
n-Butylbenzene	TX	4435	10184404
n-Propylbenzene	TX	5090	10184404
o-Xylene	TX	5250	10184404
Pentachloroethane	TX	5035	10184404
Propionitrile (Ethyl cyanide)	TX	5080	10184404



# Texas Commission on Environmental Quality



## NELAP - Recognized Laboratory Fields of Accreditation

ALS Laboratory Group, Environmental Services Division (Houston, Texas)

10450 Stancliff Road, Suite 210  
Houston, TX 77099-4338

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Expiration Date: 4/30/2018

Issue Date: 5/1/2017

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**Matrix: Solid & Chemical Materials**

Pyridine	TX	5095	10184404
sec-Butylbenzene	TX	4440	10184404
Styrene	TX	5100	10184404
tert-Butyl alcohol	TX	4420	10184404
tert-Butylbenzene	TX	4445	10184404
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184404
Toluene	TX	5140	10184404
trans-1,2-Dichloroethylene	TX	4700	10184404
trans-1,3-Dichloropropylene	TX	4685	10184404
trans-1,4-Dichloro-2-butene	TX	4605	10184404
Trichloroethene (Trichloroethylene)	TX	5170	10184404
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184404
Vinyl acetate	TX	5225	10184404
Vinyl chloride	TX	5235	10184404
Xylene (total)	TX	5260	10184404

**Method EPA 8270**

Analyte	AB	Analyte ID	Method ID
2,2'-Oxybis(1-chloropropane) (bis(2-Chloro-1-methylethyl)ether)	TX	4659	10185203
1,2,4,5-Tetrachlorobenzene	TX	6715	10185203
1,2,4-Trichlorobenzene	TX	5155	10185203
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10185203
1,2-Dichlorobenzene	TX	4610	10185203
1,2-Dinitrobenzene	TX	6155	10185203
1,2-Diphenylhydrazine	TX	6220	10185203
1,3,5-Trinitrobenzene (1,3,5-TNB)	TX	6885	10185203
1,3-Dichlorobenzene	TX	4615	10185203
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10185203
1,4-Dichlorobenzene	TX	4620	10185203
1,4-Dinitrobenzene	TX	6165	10185203
1,4-Naphthoquinone	TX	6420	10185203



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**Matrix: Solid & Chemical Materials**

1,4-Phenylenediamine	TX	6630	10185203
1-Chloronaphthalene	TX	5790	10185203
1-Naphthylamine	TX	6425	10185203
2,3,4,6-Tetrachlorophenol	TX	6735	10185203
2,4,5-Trichlorophenol	TX	6835	10185203
2,4,5-Trimethylaniline	TX	6880	10185203
2,4,6-Trichlorophenol	TX	6840	10185203
2,4-Diaminotoluene	TX	5880	10185203
2,4-Dichlorophenol	TX	6000	10185203
2,4-Dimethylphenol	TX	6130	10185203
2,4-Dinitrophenol	TX	6175	10185203
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185203
2,6-Dichlorophenol	TX	6005	10185203
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185203
2-Acetylamino fluorene	TX	5515	10185203
2-Chloronaphthalene	TX	5795	10185203
2-Chlorophenol	TX	5800	10185203
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185203
2-Methylaniline (o-Toluidine)	TX	5145	10185203
2-Methylnaphthalene	TX	6385	10185203
2-Methylphenol (o-Cresol)	TX	6400	10185203
2-Naphthylamine	TX	6430	10185203
2-Nitroaniline	TX	6460	10185203
2-Nitrophenol	TX	6490	10185203
2-Picoline (2-Methylpyridine)	TX	5050	10185203
3,3'-Dichlorobenzidine	TX	5945	10185203
3,3'-Dimethylbenzidine	TX	6120	10185203
3-Methylcholanthrene	TX	6355	10185203
3-Methylphenol (m-Cresol)	TX	6405	10185203
3-Nitroaniline	TX	6465	10185203



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**Matrix: Solid & Chemical Materials**

4-Aminobiphenyl	TX	5540	10185203
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185203
4-Chloro-3-methylphenol	TX	5700	10185203
4-Chloroaniline	TX	5745	10185203
4-Chlorophenyl phenylether	TX	5825	10185203
4-Methylphenol (p-Cresol)	TX	6410	10185203
4-Nitroaniline	TX	6470	10185203
4-Nitrophenol	TX	6500	10185203
4-Nitroquinoline-1-oxide	TX	6510	10185203
5-Nitro-o-toluidine	TX	6570	10185203
7,12-Dimethylbenz(a) anthracene	TX	6115	10185203
a-a-Dimethylphenethylamine	TX	6125	10185203
Acenaphthene	TX	5500	10185203
Acenaphthylene	TX	5505	10185203
Acetophenone	TX	5510	10185203
Aniline	TX	5545	10185203
Anthracene	TX	5555	10185203
Aramite	TX	5560	10185203
Atrazine	TX	7065	10185203
Azinphos-methyl (Guthion)	TX	7075	10185203
Azobenzene	TX	5562	10185203
Benzenethiol (Thiophenol)	TX	6750	10185203
Benzidine	TX	5595	10185203
Benzo(a)anthracene	TX	5575	10185203
Benzo(a)pyrene	TX	5580	10185203
Benzo(b)fluoranthene	TX	5585	10185203
Benzo(e)pyrene	TX	5605	10185203
Benzo(g,h,i)perylene	TX	5590	10185203
Benzo(k)fluoranthene	TX	5600	10185203
Benzoic acid	TX	5610	10185203



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**Matrix: Solid & Chemical Materials**

Benzyl alcohol	TX	5630	10185203
Biphenyl	TX	5640	10185203
bis(2-Chloroethoxy)methane	TX	5760	10185203
bis(2-Chloroethyl) ether	TX	5765	10185203
bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10185203
Butyl benzyl phthalate	TX	5670	10185203
Caprolactam	TX	7180	10185203
Carbaryl (Sevin)	TX	7195	10185203
Carbazole	TX	5680	10185203
Carbophenothion	TX	7220	10185203
Chlorobenzilate	TX	7260	10185203
Chrysene	TX	5855	10185203
Demeton	TX	7390	10185203
Demeton-o	TX	7395	10185203
Demeton-s	TX	7385	10185203
Diallate	TX	7405	10185203
Dibenz(a,h) anthracene	TX	5895	10185203
Dibenz(a,j) acridine	TX	5900	10185203
Dibenzo(a,e) pyrene	TX	5890	10185203
Dibenzofuran	TX	5905	10185203
Dichlorovos (DDVP, Dichlorvos)	TX	8610	10185203
Diethyl phthalate	TX	6070	10185203
Dimethoate	TX	7475	10185203
Dimethyl phthalate	TX	6135	10185203
Di-n-butyl phthalate	TX	5925	10185203
Di-n-octyl phthalate	TX	6200	10185203
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10185203
Diphenylamine	TX	6205	10185203
Disulfoton	TX	8625	10185203
Ethyl methanesulfonate	TX	6260	10185203



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**Matrix: Solid & Chemical Materials**

Fluoranthene	TX	6265	10185203
Fluorene	TX	6270	10185203
Hexachlorobenzene	TX	6275	10185203
Hexachlorobutadiene	TX	4835	10185203
Hexachlorocyclopentadiene	TX	6285	10185203
Hexachloroethane	TX	4840	10185203
Hexachlorophene	TX	6290	10185203
Hexachloropropene	TX	6295	10185203
Indeno(1,2,3-cd) pyrene	TX	6315	10185203
Isodrin	TX	7725	10185203
Isophorone	TX	6320	10185203
Isosafrole	TX	6325	10185203
Kepone	TX	7740	10185203
Malathion	TX	7770	10185203
Methapyrilene	TX	6345	10185203
Methyl methanesulfonate	TX	6375	10185203
Methyl parathion (Parathion, methyl)	TX	7825	10185203
Mevinphos	TX	7850	10185203
Naphthalene	TX	5005	10185203
Nitrobenzene	TX	5015	10185203
n-Nitrosodiethylamine	TX	6525	10185203
n-Nitrosodimethylamine	TX	6530	10185203
n-Nitrosodi-n-butylamine	TX	5025	10185203
n-Nitrosodi-n-propylamine	TX	6545	10185203
n-Nitrosodiphenylamine	TX	6535	10185203
n-Nitrosomethylethylamine	TX	6550	10185203
n-Nitrosomorpholine	TX	6555	10185203
n-Nitrosopiperidine	TX	6560	10185203
n-Nitrosopyrrolidine	TX	6565	10185203
o,o,o-Triethyl phosphorothioate	TX	8290	10185203





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**Matrix: Solid & Chemical Materials**

o-Anisidine	TX	5550	10185203
Parathion, ethyl	TX	7955	10185203
p-Cresidine	TX	5860	10185203
Pentachlorobenzene	TX	6590	10185203
Pentachloronitrobenzene (PCNB)	TX	6600	10185203
Pentachlorophenol	TX	6605	10185203
Phenacetin	TX	6610	10185203
Phenanthrene	TX	6615	10185203
Phenol	TX	6625	10185203
Phorate	TX	7985	10185203
Pronamide (Kerb)	TX	6650	10185203
Pyrene	TX	6665	10185203
Pyridine	TX	5095	10185203
Quinoline	TX	6670	10185203
Safrole	TX	6685	10185203
Sulfotepp	TX	8155	10185203
Terbufos	TX	8185	10185203
Tetrachlorvinphos (Stirophos, Gardona)	TX	8197	10185203
Thionazin (Zinophos)	TX	8235	10185203
Toluene diisocyanate	TX	6775	10185203

**Method EPA 8280**

Analyte	AB	Analyte ID	Method ID
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	TX	9516	10186808
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	TX	9519	10186808
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-HpCDF)	TX	9420	10186808
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD)	TX	9426	10186808
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-HpCDF)	TX	9423	10186808
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-HxCDF)	TX	9471	10186808
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-HxCDD)	TX	9453	10186808
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-HxCDF)	TX	9474	10186808



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**Matrix: Solid & Chemical Materials**

1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-HxCDD)	TX	9456	10186808
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-HxCDF)	TX	9477	10186808
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-HxCDD)	TX	9459	10186808
1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-PeCDF)	TX	9543	10186808
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-PeCDD)	TX	9540	10186808
2,3,4,6,7,8-Hexachlorodibenzofuran (2,3,4,6,7,8-HxCDF)	TX	9480	10186808
2,3,4,7,8-Pentachlorodibenzofuran (2,3,4,7,8-PeCDF)	TX	9549	10186808
2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF)	TX	9612	10186808
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	TX	9618	10186808
Total Heptachlorodibenzofuran (Total HpCDF)	TX	9444	10186808
Total Heptachlorodibenzo-p-dioxin (Total HpCDD)	TX	9438	10186808
Total Hexachlorodibenzofuran (Total HxCDF)	TX	9483	10186808
Total Hexachlorodibenzo-p-dioxin (Total HxCDD)	TX	9468	10186808
Total Pentachlorodibenzofuran (Total PeCDF)	TX	9552	10186808
Total Pentachlorodibenzo-p-dioxin (Total PeCDD)	TX	9555	10186808
Total Tetrachlorodibenzofuran (Total TCDF)	TX	9615	10186808
Total Tetrachlorodibenzo-p-dioxin (Total TCDD)	TX	9609	10186808

**Method EPA 8290**

Analyte	AB	Analyte ID	Method ID
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	TX	9516	10187209
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	TX	9519	10187209
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-HpCDF)	TX	9420	10187209
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD)	TX	9426	10187209
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-HpCDF)	TX	9423	10187209
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-HxCDF)	TX	9471	10187209
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-HxCDD)	TX	9453	10187209
1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-HxCDF)	TX	9474	10187209
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-HxCDD)	TX	9456	10187209
1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-HxCDF)	TX	9477	10187209
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-HxCDD)	TX	9459	10187209



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**Matrix: Solid & Chemical Materials**

1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-PeCDF)	TX	9543	10187209
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-PeCDD)	TX	9540	10187209
2,3,4,6,7,8-Hexachlorodibenzofuran (2,3,4,6,7,8-HxCDF)	TX	9480	10187209
2,3,4,7,8-Pentachlorodibenzofuran (2,3,4,7,8-PeCDF)	TX	9549	10187209
2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF)	TX	9612	10187209
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	TX	9618	10187209
Total Heptachlorodibenzofuran (Total HpCDF)	TX	9444	10187209
Total Heptachlorodibenzo-p-dioxin (Total HpCDD)	TX	9438	10187209
Total Hexachlorodibenzofuran (Total HxCDF)	TX	9483	10187209
Total Hexachlorodibenzo-p-dioxin (Total HxCDD)	TX	9468	10187209
Total Pentachlorodibenzofuran (Total PeCDF)	TX	9552	10187209
Total Pentachlorodibenzo-p-dioxin (Total PeCDD)	TX	9555	10187209
Total Tetrachlorodibenzofuran (Total TCDF)	TX	9615	10187209
Total Tetrachlorodibenzo-p-dioxin (Total TCDD)	TX	9609	10187209
<b>Method EPA 8315</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Formaldehyde	TX	4815	10187801
<b>Method EPA 8316</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Acrylamide	TX	4330	10188202
<b>Method EPA 8330</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
1,3,5-Trinitrobenzene (1,3,5-TNB)	TX	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	TX	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	TX	9303	10189807
2-Nitrotoluene	TX	9507	10189807
3-Nitrotoluene	TX	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	TX	9306	10189807



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**Matrix: Solid & Chemical Materials**

4-Nitrotoluene	TX	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	TX	6415	10189807
Nitrobenzene	TX	5015	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	TX	9522	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	TX	9432	10189807
<b>Method EPA 9014</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Amenable cyanide	TX	1510	10193803
Total Cyanide	TX	1635	10193803
<b>Method EPA 9040</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Corrosivity	TX	1615	10197203
pH	TX	1900	10196802
<b>Method EPA 9045</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Corrosivity	TX	1615	10197805
pH	TX	1900	10197805
<b>Method EPA 9050</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Conductivity	TX	1610	10198604
<b>Method EPA 9056</b>			
<b>Analyte</b>	<b>AB</b>	<b>Analyte ID</b>	<b>Method ID</b>
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Orthophosphate as P	TX	1870	10199209
Sulfate	TX	2000	10199209



# Texas Commission on Environmental Quality



## NELAP - Recognized Laboratory Fields of Accreditation

ALS Laboratory Group, Environmental Services Division (Houston, Texas)

10450 Stancliff Road, Suite 210  
Houston, TX 77099-4338

Certificate: T104704231-17-18  
Expiration Date: 4/30/2018  
Issue Date: 5/1/2017

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

**Matrix: Solid & Chemical Materials**

Method	Analyte	AB	Analyte ID	Method ID
EPA 9060	Total Organic Carbon (TOC)	TX	2040	10200201
EPA 9065	Total phenolics	TX	1905	10200405
EPA 9071	n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10201204
EPA 9095	Paint Filter Liquids Test	TX	10312	10204009
SM 2320 B	Alkalinity as CaCO3	TX	1505	20045005
SM 2510 B	Conductivity	TX	1610	20048004
SM 2540 G	Residue-total (total solids)	TX	1950	20005203
SSA/ASA Part 3:34	Carbon, organic (Walkley-Black)	TX	10340	SSA/ASA Pt 3:34
TCEQ 1005	Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208



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10450 Stancliff Rd. Suite 210  
Houston, TX 77099  
T: +1 281 530 5656  
F: +1 281 530 5887

January 19, 2018

Eric Matzner  
Pastor, Behling & Wheeler, LLC  
2201 Double Creek Drive  
Suite 4004  
Round Rock, TX 78664

Work Order: **HS18010144**

Laboratory Results for: **Houston TX-Wood Preserving Works**

Dear Eric,

ALS Environmental received 14 sample(s) on Jan 05, 2018 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: **Jumoke.Lawal**  
Dane J. Wacasey

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**TRRP Laboratory Data  
Package Cover Page**

This data package consists of all or some of the following as applicable:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits.
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 Other problems or anomalies.  
The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**TRRP Laboratory Data  
Package Cover Page**

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory have been identified by the laboratory in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable:  [NA] This laboratory meets an exception under 30 TAC §25.6 and was last inspected by  TCEQ or  \_\_\_\_\_ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.



Dane J. Wacasey



Laboratory Review Checklist: Reportable Data							
Laboratory Name: ALS Laboratory Group				LRC Date: 01/19/2018			
Project Name: Houston TX-Wood Preserving Works				Laboratory Job Number: HS18010144			
Reviewer Name: Dane Wacasey				Prep Batch Number(s): 124150			
# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
<b>R1</b>	OI	<b>Chain-of-custody (C-O-C)</b>					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
<b>R2</b>	OI	<b>Sample and quality control (QC) identification</b>					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
<b>R3</b>	OI	<b>Test reports</b>					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW-846 Method 5035?			X		
		If required for the project, TICs reported?			X		
<b>R4</b>	O	<b>Surrogate recovery data</b>					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
<b>R5</b>	OI	<b>Test reports/summary forms for blank samples</b>					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
<b>R6</b>	OI	<b>Laboratory control samples (LCS):</b>					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
<b>R7</b>	OI	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?		X			1
<b>R8</b>	OI	<b>Analytical duplicate data</b>					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
<b>R9</b>	OI	<b>Method quantitation limits (MQLs):</b>					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
<b>R10</b>	OI	<b>Other problems/anomalies</b>					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Were all necessary corrective actions performed for the reported data?	X				
		Was applicable and available technology used to lower the SDL and minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Program for the analytes, matrices and methods associated with this laboratory data package?	X				

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

O = Organic Analyses; I = Inorganic Analyses (and general chemistry, when applicable);

NA = Not Applicable;

NR = Not Reviewed;

R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data							
Laboratory Name: ALS Laboratory Group				LRC Date: 01/19/2018			
Project Name: Houston TX-Wood Preserving Works				Laboratory Job Number: HS18010144			
Reviewer Name: Dane Wacasey				Prep Batch Number(s): 124150			
# <sup>1</sup>	A <sup>2</sup>	Description	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
<b>S1</b>	OI	<b>Initial calibration (ICAL)</b>					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
<b>S2</b>	OI	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB)</b>					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
<b>S3</b>	O	<b>Mass spectral tuning:</b>					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
<b>S4</b>	O	<b>Internal standards (IS):</b>					
		Were IS area counts and retention times within the method-required QC limits?	X				
<b>S5</b>	OI	<b>Raw data</b> (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
<b>S6</b>	O	<b>Dual column confirmation</b>					
		Did dual column confirmation results meet the method-required QC?			X		
<b>S7</b>	O	<b>Tentatively identified compounds (TICs):</b>					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
<b>S8</b>	I	<b>Interference Check Sample (ICS) results:</b>					
		Were percent recoveries within method QC limits?			X		
<b>S9</b>	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
<b>S10</b>	OI	<b>Method detection limit (MDL) studies</b>					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
<b>S11</b>	OI	<b>Proficiency test reports:</b>					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
<b>S12</b>	OI	<b>Standards documentation</b>					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
<b>S13</b>	OI	<b>Compound/analyte identification procedures</b>					
		Are the procedures for compound/analyte identification documented?	X				
<b>S14</b>	OI	<b>Demonstration of analyst competency (DOC)</b>					
		Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
<b>S15</b>	OI	<b>Verification/validation documentation for methods</b> (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
<b>S16</b>	OI	<b>Laboratory standard operating procedures (SOPs):</b>					
		Are laboratory SOPs current and on file for each method performed?	X				

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

O = Organic Analyses; I = Inorganic Analyses (and general chemistry, when applicable);

NA = Not Applicable;

NR = Not Reviewed;

R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

**Laboratory Review Checklist: Exception Data**

Laboratory Name: ALS Laboratory Group		LRC Date: 01/19/2018	
Project Name: Houston TX-Wood Preserving Works		Laboratory Job Number: HS18010144	
Reviewer Name: Dane Wacasey		Prep Batch Number(s): 124150	
<b>ER#<sup>5</sup></b>	<b>Description</b>		
1	Batch 124150, Semivolatile Organics Method SW8270, sample WG-1620-P12-20180104, MS/MSD RPD is for an unrelated sample.		
Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. O = Organic Analyses; I = Inorganic Analyses (and general chemistry, when applicable); NA = Not Applicable; NR = Not Reviewed; R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).			

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**Work Order:** HS18010144

**SAMPLE SUMMARY**

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18010144-01	WG-1620-MW11A-20180103	Groundwater		03-Jan-2018 16:40	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-02	WG-1620-MW11B-20180103	Groundwater		03-Jan-2018 17:20	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-03	WG-1620-FB01-20180103	Groundwater		03-Jan-2018 17:30	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-04	WG-1620-MW10A-20180104	Groundwater		04-Jan-2018 07:45	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-05	WG-1620-MW10B-20180104	Groundwater		04-Jan-2018 08:30	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-06	WG-1620-MW02-20180104	Groundwater		04-Jan-2018 09:20	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-07	WG-1620-MW01A-20180104	Groundwater		04-Jan-2018 10:20	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-08	WG-1620-FD01-20180104	Groundwater		04-Jan-2018 10:20	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-09	WG-1620-P10-20180104	Groundwater		04-Jan-2018 11:30	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-10	WG-1620-FD02-20180104	Groundwater		04-Jan-2018 11:30	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-11	WG-1620-MW07-20180104	Groundwater		04-Jan-2018 12:15	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-12	WG-1620-P12-20180104	Groundwater		04-Jan-2018 14:05	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-13	WG-1620-MW08-20180104	Groundwater		04-Jan-2018 15:10	05-Jan-2018 08:00	<input type="checkbox"/>
HS18010144-14	WG-1620-FB02-20180104	Groundwater		04-Jan-2018 15:30	05-Jan-2018 08:00	<input type="checkbox"/>

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-MW11A-20180103  
 Collection Date: 03-Jan-2018 16:40

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-01  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
2-Methylnaphthalene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 17:56
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 17:56
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 17:56
Anthracene	U		0.000014	0.00010	mg/L	1	11-Jan-2018 17:56
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.000073</b>	J	<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 17:56
Dibenzofuran	U		0.000020	0.00010	mg/L	1	11-Jan-2018 17:56
Fluoranthene	U		0.000010	0.00010	mg/L	1	11-Jan-2018 17:56
Fluorene	U		0.000030	0.00010	mg/L	1	11-Jan-2018 17:56
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 17:56
Phenanthrene	U		0.000021	0.00010	mg/L	1	11-Jan-2018 17:56
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 17:56
<i>Surr: 2,4,6-Tribromophenol</i>	<i>67.7</i>			<i>34-129</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 17:56</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>74.7</i>			<i>40-125</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 17:56</i>
<i>Surr: 2-Fluorophenol</i>	<i>55.3</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 17:56</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>88.3</i>			<i>40-135</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 17:56</i>
<i>Surr: Nitrobenzene-d5</i>	<i>77.3</i>			<i>41-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 17:56</i>
<i>Surr: Phenol-d6</i>	<i>57.7</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 17:56</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-MW11B-20180103  
 Collection Date: 03-Jan-2018 17:20

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-02  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 18:15
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 18:15
<b>Anthracene</b>	<b>0.00010</b>		<b>0.000014</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 18:15
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.00010</b>	J	<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 18:15
Dibenzofuran	U		0.000020	0.00010	mg/L	1	11-Jan-2018 18:15
<b>Di-n-butyl phthalate</b>	<b>0.000045</b>	J	<b>0.000020</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 18:15
Fluoranthene	U		0.000010	0.00010	mg/L	1	11-Jan-2018 18:15
Fluorene	U		0.000030	0.00010	mg/L	1	11-Jan-2018 18:15
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 18:15
Phenol	U		0.000035	0.00020	mg/L	1	11-Jan-2018 18:15
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 18:15
<i>Surr: 2,4,6-Tribromophenol</i>	93.5			34-129	%REC	1	11-Jan-2018 18:15
<i>Surr: 2-Fluorobiphenyl</i>	60.5			40-125	%REC	1	11-Jan-2018 18:15
<i>Surr: 2-Fluorophenol</i>	44.9			20-120	%REC	1	11-Jan-2018 18:15
<i>Surr: 4-Terphenyl-d14</i>	90.2			40-135	%REC	1	11-Jan-2018 18:15
<i>Surr: Nitrobenzene-d5</i>	59.4			41-120	%REC	1	11-Jan-2018 18:15
<i>Surr: Phenol-d6</i>	39.6			20-120	%REC	1	11-Jan-2018 18:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-FB01-20180103  
 Collection Date: 03-Jan-2018 17:30

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-03  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
2-Methylnaphthalene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 18:35
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 18:35
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 18:35
Anthracene	U		0.000014	0.00010	mg/L	1	11-Jan-2018 18:35
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.00058</b>		<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 18:35
Dibenzofuran	U		0.000020	0.00010	mg/L	1	11-Jan-2018 18:35
<b>Di-n-butyl phthalate</b>	<b>0.000020</b>	J	<b>0.000020</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 18:35
Fluoranthene	U		0.000010	0.00010	mg/L	1	11-Jan-2018 18:35
Fluorene	U		0.000030	0.00010	mg/L	1	11-Jan-2018 18:35
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 18:35
Phenanthrene	U		0.000021	0.00010	mg/L	1	11-Jan-2018 18:35
Phenol	U		0.000035	0.00020	mg/L	1	11-Jan-2018 18:35
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 18:35
<i>Surr: 2,4,6-Tribromophenol</i>	60.2			34-129	%REC	1	11-Jan-2018 18:35
<i>Surr: 2-Fluorobiphenyl</i>	75.8			40-125	%REC	1	11-Jan-2018 18:35
<i>Surr: 2-Fluorophenol</i>	60.3			20-120	%REC	1	11-Jan-2018 18:35
<i>Surr: 4-Terphenyl-d14</i>	84.0			40-135	%REC	1	11-Jan-2018 18:35
<i>Surr: Nitrobenzene-d5</i>	76.7			41-120	%REC	1	11-Jan-2018 18:35
<i>Surr: Phenol-d6</i>	63.5			20-120	%REC	1	11-Jan-2018 18:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-MW10A-20180104  
 Collection Date: 04-Jan-2018 07:45

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-04  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
2-Methylnaphthalene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 18:55
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 18:55
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 18:55
Anthracene	U		0.000014	0.00010	mg/L	1	11-Jan-2018 18:55
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.000057</b>	J	<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 18:55
Dibenzofuran	U		0.000020	0.00010	mg/L	1	11-Jan-2018 18:55
Fluoranthene	U		0.000010	0.00010	mg/L	1	11-Jan-2018 18:55
Fluorene	U		0.000030	0.00010	mg/L	1	11-Jan-2018 18:55
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 18:55
Phenanthrene	U		0.000021	0.00010	mg/L	1	11-Jan-2018 18:55
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 18:55
<i>Surr: 2,4,6-Tribromophenol</i>	<i>77.6</i>			<i>34-129</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 18:55</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>55.4</i>			<i>40-125</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 18:55</i>
<i>Surr: 2-Fluorophenol</i>	<i>47.1</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 18:55</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>85.4</i>			<i>40-135</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 18:55</i>
<i>Surr: Nitrobenzene-d5</i>	<i>59.3</i>			<i>41-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 18:55</i>
<i>Surr: Phenol-d6</i>	<i>49.2</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 18:55</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.



Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-MW10B-20180104  
 Collection Date: 04-Jan-2018 08:30

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-05  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
<b>Acenaphthene</b>	<b>0.093</b>		<b>0.00027</b>	<b>0.0010</b>	<b>mg/L</b>	10	12-Jan-2018 17:31
<b>Acenaphthylene</b>	<b>0.00068</b>		<b>0.000015</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 19:14
<b>Anthracene</b>	<b>0.0052</b>		<b>0.000014</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 19:14
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.000059</b>	J	<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 19:14
<b>Dibenzofuran</b>	<b>0.048</b>		<b>0.00020</b>	<b>0.0010</b>	<b>mg/L</b>	10	12-Jan-2018 17:31
Di-n-butyl phthalate	U		0.000020	0.00020	mg/L	1	11-Jan-2018 19:14
<b>Fluoranthene</b>	<b>0.0053</b>		<b>0.000010</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 19:14
<b>Fluorene</b>	<b>0.060</b>		<b>0.00030</b>	<b>0.0010</b>	<b>mg/L</b>	10	12-Jan-2018 17:31
<b>Naphthalene</b>	<b>0.0013</b>		<b>0.000020</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 19:14
Phenol	U		0.000035	0.00020	mg/L	1	11-Jan-2018 19:14
<b>Pyrene</b>	<b>0.0019</b>		<b>0.000019</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 19:14
<i>Surr: 2,4,6-Tribromophenol</i>	82.5			34-129	%REC	10	12-Jan-2018 17:31
<i>Surr: 2,4,6-Tribromophenol</i>	79.2			34-129	%REC	1	11-Jan-2018 19:14
<i>Surr: 2-Fluorobiphenyl</i>	64.9			40-125	%REC	1	11-Jan-2018 19:14
<i>Surr: 2-Fluorobiphenyl</i>	69.4			40-125	%REC	10	12-Jan-2018 17:31
<i>Surr: 2-Fluorophenol</i>	48.9			20-120	%REC	10	12-Jan-2018 17:31
<i>Surr: 2-Fluorophenol</i>	50.7			20-120	%REC	1	11-Jan-2018 19:14
<i>Surr: 4-Terphenyl-d14</i>	79.6			40-135	%REC	1	11-Jan-2018 19:14
<i>Surr: 4-Terphenyl-d14</i>	86.7			40-135	%REC	10	12-Jan-2018 17:31
<i>Surr: Nitrobenzene-d5</i>	65.7			41-120	%REC	10	12-Jan-2018 17:31
<i>Surr: Nitrobenzene-d5</i>	68.8			41-120	%REC	1	11-Jan-2018 19:14
<i>Surr: Phenol-d6</i>	60.1			20-120	%REC	1	11-Jan-2018 19:14
<i>Surr: Phenol-d6</i>	51.8			20-120	%REC	10	12-Jan-2018 17:31

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-MW02-20180104  
 Collection Date: 04-Jan-2018 09:20

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-06  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>				Prep:SW3510 / 09-Jan-2018		Analyst: ACN
2-Methylnaphthalene	0.0051		0.000019	0.00010	mg/L	1	11-Jan-2018 19:34
Acenaphthene	0.015		0.00027	0.0010	mg/L	10	12-Jan-2018 18:10
Acenaphthylene	0.00018		0.000015	0.00010	mg/L	1	11-Jan-2018 19:34
Anthracene	0.00036		0.000014	0.00010	mg/L	1	11-Jan-2018 19:34
Bis(2-ethylhexyl)phthalate	0.00016	J	0.000037	0.00020	mg/L	1	11-Jan-2018 19:34
Dibenzofuran	0.0019		0.000020	0.00010	mg/L	1	11-Jan-2018 19:34
Fluoranthene	0.00071		0.000010	0.00010	mg/L	1	11-Jan-2018 19:34
Fluorene	0.0099		0.000030	0.00010	mg/L	1	11-Jan-2018 19:34
Naphthalene	0.00015		0.000020	0.00010	mg/L	1	11-Jan-2018 19:34
Phenanthrene	0.0011		0.000021	0.00010	mg/L	1	11-Jan-2018 19:34
Pyrene	0.00032		0.000019	0.00010	mg/L	1	11-Jan-2018 19:34
Surr: 2,4,6-Tribromophenol	79.8			34-129	%REC	1	11-Jan-2018 19:34
Surr: 2,4,6-Tribromophenol	73.7			34-129	%REC	10	12-Jan-2018 18:10
Surr: 2-Fluorobiphenyl	71.5			40-125	%REC	10	12-Jan-2018 18:10
Surr: 2-Fluorobiphenyl	74.4			40-125	%REC	1	11-Jan-2018 19:34
Surr: 2-Fluorophenol	53.6			20-120	%REC	1	11-Jan-2018 19:34
Surr: 2-Fluorophenol	53.3			20-120	%REC	10	12-Jan-2018 18:10
Surr: 4-Terphenyl-d14	89.5			40-135	%REC	10	12-Jan-2018 18:10
Surr: 4-Terphenyl-d14	87.2			40-135	%REC	1	11-Jan-2018 19:34
Surr: Nitrobenzene-d5	76.3			41-120	%REC	1	11-Jan-2018 19:34
Surr: Nitrobenzene-d5	71.4			41-120	%REC	10	12-Jan-2018 18:10
Surr: Phenol-d6	53.3			20-120	%REC	10	12-Jan-2018 18:10
Surr: Phenol-d6	57.3			20-120	%REC	1	11-Jan-2018 19:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-MW01A-20180104  
 Collection Date: 04-Jan-2018 10:20

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-07  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>		Method:SW8270		Prep:SW3510 / 09-Jan-2018		Analyst: ACN	
2-Methylnaphthalene	0.000096	J	0.000019	0.00010	mg/L	1	11-Jan-2018 19:53
Acenaphthene	0.041		0.00027	0.0010	mg/L	10	12-Jan-2018 18:30
Acenaphthylene	0.00086		0.000015	0.00010	mg/L	1	11-Jan-2018 19:53
Anthracene	0.0012		0.000014	0.00010	mg/L	1	11-Jan-2018 19:53
Bis(2-ethylhexyl)phthalate	0.000072	J	0.000037	0.00020	mg/L	1	11-Jan-2018 19:53
Dibenzofuran	0.0016		0.000020	0.00010	mg/L	1	11-Jan-2018 19:53
Fluoranthene	0.0032		0.000010	0.00010	mg/L	1	11-Jan-2018 19:53
Fluorene	0.018		0.00030	0.0010	mg/L	10	12-Jan-2018 18:30
Naphthalene		U	0.000020	0.00010	mg/L	1	11-Jan-2018 19:53
Phenanthrene	0.00040		0.000021	0.00010	mg/L	1	11-Jan-2018 19:53
Pyrene	0.0014		0.000019	0.00010	mg/L	1	11-Jan-2018 19:53
Surr: 2,4,6-Tribromophenol	99.8			34-129	%REC	1	11-Jan-2018 19:53
Surr: 2,4,6-Tribromophenol	86.9			34-129	%REC	10	12-Jan-2018 18:30
Surr: 2-Fluorobiphenyl	82.0			40-125	%REC	1	11-Jan-2018 19:53
Surr: 2-Fluorobiphenyl	93.2			40-125	%REC	10	12-Jan-2018 18:30
Surr: 2-Fluorophenol	75.0			20-120	%REC	10	12-Jan-2018 18:30
Surr: 2-Fluorophenol	73.4			20-120	%REC	1	11-Jan-2018 19:53
Surr: 4-Terphenyl-d14	91.7			40-135	%REC	1	11-Jan-2018 19:53
Surr: 4-Terphenyl-d14	95.8			40-135	%REC	10	12-Jan-2018 18:30
Surr: Nitrobenzene-d5	90.5			41-120	%REC	10	12-Jan-2018 18:30
Surr: Nitrobenzene-d5	84.8			41-120	%REC	1	11-Jan-2018 19:53
Surr: Phenol-d6	78.8			20-120	%REC	1	11-Jan-2018 19:53
Surr: Phenol-d6	69.7			20-120	%REC	10	12-Jan-2018 18:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-FD01-20180104  
 Collection Date: 04-Jan-2018 10:20

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-08  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
2-Methylnaphthalene	0.00024		0.000019	0.00010	mg/L	1	11-Jan-2018 20:13
Acenaphthene	0.039		0.00027	0.0010	mg/L	10	12-Jan-2018 18:49
Acenaphthylene	0.00083		0.000015	0.00010	mg/L	1	11-Jan-2018 20:13
Anthracene	0.0011		0.000014	0.00010	mg/L	1	11-Jan-2018 20:13
Bis(2-ethylhexyl)phthalate	0.000085	J	0.000037	0.00020	mg/L	1	11-Jan-2018 20:13
Dibenzofuran	0.0015		0.000020	0.00010	mg/L	1	11-Jan-2018 20:13
Fluoranthene	0.0029		0.000010	0.00010	mg/L	1	11-Jan-2018 20:13
Fluorene	0.017		0.00030	0.0010	mg/L	10	12-Jan-2018 18:49
Naphthalene		U	0.000020	0.00010	mg/L	1	11-Jan-2018 20:13
Phenanthrene	0.00035		0.000021	0.00010	mg/L	1	11-Jan-2018 20:13
Pyrene	0.0014		0.000019	0.00010	mg/L	1	11-Jan-2018 20:13
Surr: 2,4,6-Tribromophenol	75.3			34-129	%REC	1	11-Jan-2018 20:13
Surr: 2,4,6-Tribromophenol	89.9			34-129	%REC	10	12-Jan-2018 18:49
Surr: 2-Fluorobiphenyl	83.4			40-125	%REC	10	12-Jan-2018 18:49
Surr: 2-Fluorobiphenyl	71.0			40-125	%REC	1	11-Jan-2018 20:13
Surr: 2-Fluorophenol	58.9			20-120	%REC	1	11-Jan-2018 20:13
Surr: 2-Fluorophenol	64.7			20-120	%REC	10	12-Jan-2018 18:49
Surr: 4-Terphenyl-d14	96.6			40-135	%REC	10	12-Jan-2018 18:49
Surr: 4-Terphenyl-d14	87.2			40-135	%REC	1	11-Jan-2018 20:13
Surr: Nitrobenzene-d5	77.4			41-120	%REC	1	11-Jan-2018 20:13
Surr: Nitrobenzene-d5	82.5			41-120	%REC	10	12-Jan-2018 18:49
Surr: Phenol-d6	63.8			20-120	%REC	10	12-Jan-2018 18:49
Surr: Phenol-d6	64.8			20-120	%REC	1	11-Jan-2018 20:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-P10-20180104  
 Collection Date: 04-Jan-2018 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-09  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 20:32
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 20:32
Anthracene	U		0.000014	0.00010	mg/L	1	11-Jan-2018 20:32
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.00024</b>		<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 20:32
<b>Dibenzofuran</b>	<b>0.00029</b>		<b>0.000020</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:32
<b>Di-n-butyl phthalate</b>	<b>0.000042</b>	J	<b>0.000020</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 20:32
<b>Fluoranthene</b>	<b>0.00017</b>		<b>0.000010</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:32
<b>Fluorene</b>	<b>0.00042</b>		<b>0.000030</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:32
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 20:32
Phenol	U		0.000035	0.00020	mg/L	1	11-Jan-2018 20:32
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 20:32
<i>Surr: 2,4,6-Tribromophenol</i>	<i>78.7</i>			<i>34-129</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 20:32</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>69.7</i>			<i>40-125</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 20:32</i>
<i>Surr: 2-Fluorophenol</i>	<i>55.7</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 20:32</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>90.8</i>			<i>40-135</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 20:32</i>
<i>Surr: Nitrobenzene-d5</i>	<i>72.1</i>			<i>41-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 20:32</i>
<i>Surr: Phenol-d6</i>	<i>57.6</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 20:32</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-FD02-20180104  
 Collection Date: 04-Jan-2018 11:30

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-10  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
<b>Acenaphthene</b>	<b>0.0033</b>		<b>0.000027</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 20:52
<b>Anthracene</b>	<b>0.00017</b>		<b>0.000014</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.00017</b>	J	<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
<b>Dibenzofuran</b>	<b>0.00093</b>		<b>0.000020</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
<b>Di-n-butyl phthalate</b>	<b>0.000034</b>	J	<b>0.000020</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
<b>Fluoranthene</b>	<b>0.00016</b>		<b>0.000010</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
<b>Fluorene</b>	<b>0.0012</b>		<b>0.000030</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
<b>Naphthalene</b>	<b>0.0034</b>		<b>0.000020</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
<b>Phenol</b>	<b>0.0014</b>		<b>0.000035</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 20:52
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 20:52
<i>Surr: 2,4,6-Tribromophenol</i>	73.5			34-129	%REC	1	11-Jan-2018 20:52
<i>Surr: 2-Fluorobiphenyl</i>	61.6			40-125	%REC	1	11-Jan-2018 20:52
<i>Surr: 2-Fluorophenol</i>	57.9			20-120	%REC	1	11-Jan-2018 20:52
<i>Surr: 4-Terphenyl-d14</i>	90.6			40-135	%REC	1	11-Jan-2018 20:52
<i>Surr: Nitrobenzene-d5</i>	68.6			41-120	%REC	1	11-Jan-2018 20:52
<i>Surr: Phenol-d6</i>	62.8			20-120	%REC	1	11-Jan-2018 20:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-MW07-20180104  
 Collection Date: 04-Jan-2018 12:15

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-11  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
2-Methylnaphthalene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 21:11
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 21:11
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 21:11
<b>Anthracene</b>	<b>0.00014</b>		<b>0.000014</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 21:11
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.000088</b>	J	<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 21:11
Dibenzofuran	U		0.000020	0.00010	mg/L	1	11-Jan-2018 21:11
Fluoranthene	U		0.000010	0.00010	mg/L	1	11-Jan-2018 21:11
Fluorene	U		0.000030	0.00010	mg/L	1	11-Jan-2018 21:11
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 21:11
Phenanthrene	U		0.000021	0.00010	mg/L	1	11-Jan-2018 21:11
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 21:11
<i>Surr: 2,4,6-Tribromophenol</i>	<i>74.2</i>			<i>34-129</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:11</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>65.1</i>			<i>40-125</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:11</i>
<i>Surr: 2-Fluorophenol</i>	<i>48.7</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:11</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>86.8</i>			<i>40-135</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:11</i>
<i>Surr: Nitrobenzene-d5</i>	<i>66.9</i>			<i>41-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:11</i>
<i>Surr: Phenol-d6</i>	<i>50.6</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:11</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-P12-20180104  
 Collection Date: 04-Jan-2018 14:05

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-12  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>		<b>Method:SW8270</b>		Prep:SW3510 / 09-Jan-2018		Analyst: ACN	
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 15:18
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 15:18
<b>Anthracene</b>	<b>0.000036</b>	J	<b>0.000014</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 15:18
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.00012</b>	J	<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 15:18
Dibenzofuran	U		0.000020	0.00010	mg/L	1	11-Jan-2018 15:18
<b>Di-n-butyl phthalate</b>	<b>0.000022</b>	J	<b>0.000020</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 15:18
Fluoranthene	U		0.000010	0.00010	mg/L	1	11-Jan-2018 15:18
Fluorene	U		0.000030	0.00010	mg/L	1	11-Jan-2018 15:18
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 15:18
Phenol	U		0.000035	0.00020	mg/L	1	11-Jan-2018 15:18
<b>Pyrene</b>	<b>0.000097</b>	J	<b>0.000019</b>	<b>0.00010</b>	<b>mg/L</b>	1	11-Jan-2018 15:18
<i>Surr: 2,4,6-Tribromophenol</i>	85.2			34-129	%REC	1	11-Jan-2018 15:18
<i>Surr: 2-Fluorobiphenyl</i>	76.3			40-125	%REC	1	11-Jan-2018 15:18
<i>Surr: 2-Fluorophenol</i>	54.5			20-120	%REC	1	11-Jan-2018 15:18
<i>Surr: 4-Terphenyl-d14</i>	103			40-135	%REC	1	11-Jan-2018 15:18
<i>Surr: Nitrobenzene-d5</i>	76.4			41-120	%REC	1	11-Jan-2018 15:18
<i>Surr: Phenol-d6</i>	62.8			20-120	%REC	1	11-Jan-2018 15:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.



Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-MW08-20180104  
 Collection Date: 04-Jan-2018 15:10

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-13  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
2-Methylnaphthalene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 21:31
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 21:31
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 21:31
Anthracene	U		0.000014	0.00010	mg/L	1	11-Jan-2018 21:31
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.000097</b>	J	<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 21:31
Dibenzofuran	U		0.000020	0.00010	mg/L	1	11-Jan-2018 21:31
Fluoranthene	U		0.000010	0.00010	mg/L	1	11-Jan-2018 21:31
Fluorene	U		0.000030	0.00010	mg/L	1	11-Jan-2018 21:31
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 21:31
Phenanthrene	U		0.000021	0.00010	mg/L	1	11-Jan-2018 21:31
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 21:31
<i>Surr: 2,4,6-Tribromophenol</i>	<i>59.8</i>			<i>34-129</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:31</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>53.4</i>			<i>40-125</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:31</i>
<i>Surr: 2-Fluorophenol</i>	<i>43.1</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:31</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>79.2</i>			<i>40-135</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:31</i>
<i>Surr: Nitrobenzene-d5</i>	<i>60.2</i>			<i>41-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:31</i>
<i>Surr: Phenol-d6</i>	<i>43.0</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:31</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Pastor, Behling & Wheeler, LLC  
 Project: Houston TX-Wood Preserving Works  
 Sample ID: WG-1620-FB02-20180104  
 Collection Date: 04-Jan-2018 15:30

**ANALYTICAL REPORT**  
 WorkOrder:HS18010144  
 Lab ID:HS18010144-14  
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW-LEVEL SEMIVOLATILES</b>	<b>Method:SW8270</b>					Prep:SW3510 / 09-Jan-2018	Analyst: ACN
2-Methylnaphthalene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 21:50
Acenaphthene	U		0.000027	0.00010	mg/L	1	11-Jan-2018 21:50
Acenaphthylene	U		0.000015	0.00010	mg/L	1	11-Jan-2018 21:50
Anthracene	U		0.000014	0.00010	mg/L	1	11-Jan-2018 21:50
<b>Bis(2-ethylhexyl)phthalate</b>	<b>0.00023</b>		<b>0.000037</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 21:50
Dibenzofuran	U		0.000020	0.00010	mg/L	1	11-Jan-2018 21:50
<b>Di-n-butyl phthalate</b>	<b>0.000022</b>	J	<b>0.000020</b>	<b>0.00020</b>	<b>mg/L</b>	1	11-Jan-2018 21:50
Fluoranthene	U		0.000010	0.00010	mg/L	1	11-Jan-2018 21:50
Fluorene	U		0.000030	0.00010	mg/L	1	11-Jan-2018 21:50
Naphthalene	U		0.000020	0.00010	mg/L	1	11-Jan-2018 21:50
Phenanthrene	U		0.000021	0.00010	mg/L	1	11-Jan-2018 21:50
Phenol	U		0.000035	0.00020	mg/L	1	11-Jan-2018 21:50
Pyrene	U		0.000019	0.00010	mg/L	1	11-Jan-2018 21:50
<i>Surr: 2,4,6-Tribromophenol</i>	<i>59.0</i>			<i>34-129</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:50</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>77.2</i>			<i>40-125</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:50</i>
<i>Surr: 2-Fluorophenol</i>	<i>61.1</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:50</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>87.7</i>			<i>40-135</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:50</i>
<i>Surr: Nitrobenzene-d5</i>	<i>80.9</i>			<i>41-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:50</i>
<i>Surr: Phenol-d6</i>	<i>61.7</i>			<i>20-120</i>	<i>%REC</i>	<i>1</i>	<i>11-Jan-2018 21:50</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

## WEIGHT LOG

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**Batch ID:** 124150      **Method:** LOW-LEVEL SEMIVOLATILES      **Prep:** 3510\_B\_LOW

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18010144-01	1	1000	1 (mL)	0.001
HS18010144-02	1	1000	1 (mL)	0.001
HS18010144-03	1	1000	1 (mL)	0.001
HS18010144-04	1	1000	1 (mL)	0.001
HS18010144-05	1	1000	1 (mL)	0.001
HS18010144-06	1	1000	1 (mL)	0.001
HS18010144-07	1	1000	1 (mL)	0.001
HS18010144-08	1	1000	1 (mL)	0.001
HS18010144-09	1	1000	1 (mL)	0.001
HS18010144-10	1	990	1 (mL)	0.00101
HS18010144-11	1	990	1 (mL)	0.00101
HS18010144-12	1	1000	1 (mL)	0.001
HS18010144-13	1	1000	1 (mL)	0.001
HS18010144-14	1	990	1 (mL)	0.00101

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
<b>Batch ID</b> 124150	<b>Test Name : LOW-LEVEL SEMIVOLATILES</b>			<b>Matrix: Groundwater</b>		
HS18010144-01	WG-1620-MW11A-20180103	03 Jan 2018 16:40		09 Jan 2018 07:05	11 Jan 2018 17:56	1
HS18010144-02	WG-1620-MW11B-20180103	03 Jan 2018 17:20		09 Jan 2018 07:05	11 Jan 2018 18:15	1
HS18010144-03	WG-1620-FB01-20180103	03 Jan 2018 17:30		09 Jan 2018 07:05	11 Jan 2018 18:35	1
HS18010144-04	WG-1620-MW10A-20180104	04 Jan 2018 07:45		09 Jan 2018 07:05	11 Jan 2018 18:55	1
HS18010144-05	WG-1620-MW10B-20180104	04 Jan 2018 08:30		09 Jan 2018 07:05	12 Jan 2018 17:31	10
HS18010144-05	WG-1620-MW10B-20180104	04 Jan 2018 08:30		09 Jan 2018 07:05	11 Jan 2018 19:14	1
HS18010144-06	WG-1620-MW02-20180104	04 Jan 2018 09:20		09 Jan 2018 07:05	12 Jan 2018 18:10	10
HS18010144-06	WG-1620-MW02-20180104	04 Jan 2018 09:20		09 Jan 2018 07:05	11 Jan 2018 19:34	1
HS18010144-07	WG-1620-MW01A-20180104	04 Jan 2018 10:20		09 Jan 2018 07:05	12 Jan 2018 18:30	10
HS18010144-07	WG-1620-MW01A-20180104	04 Jan 2018 10:20		09 Jan 2018 07:05	11 Jan 2018 19:53	1
HS18010144-08	WG-1620-FD01-20180104	04 Jan 2018 10:20		09 Jan 2018 07:05	12 Jan 2018 18:49	10
HS18010144-08	WG-1620-FD01-20180104	04 Jan 2018 10:20		09 Jan 2018 07:05	11 Jan 2018 20:13	1
HS18010144-09	WG-1620-P10-20180104	04 Jan 2018 11:30		09 Jan 2018 07:05	11 Jan 2018 20:32	1
HS18010144-10	WG-1620-FD02-20180104	04 Jan 2018 11:30		09 Jan 2018 07:05	11 Jan 2018 20:52	1
HS18010144-11	WG-1620-MW07-20180104	04 Jan 2018 12:15		09 Jan 2018 07:05	11 Jan 2018 21:11	1
HS18010144-12	WG-1620-P12-20180104	04 Jan 2018 14:05		09 Jan 2018 07:05	11 Jan 2018 15:18	1
HS18010144-13	WG-1620-MW08-20180104	04 Jan 2018 15:10		09 Jan 2018 07:05	11 Jan 2018 21:31	1
HS18010144-14	WG-1620-FB02-20180104	04 Jan 2018 15:30		09 Jan 2018 07:05	11 Jan 2018 21:50	1

WorkOrder: HS18010144  
 InstrumentID: SV-7  
 Test Code: 8270\_LOW\_W  
 Test Number: SW8270  
 Test Name: Low-Level Semivolatiles

**METHOD DETECTION /  
 REPORTING LIMITS**

**Matrix:** Aqueous      **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	2-Methylnaphthalene	91-57-6	0.00010	0.000077	0.000019	0.00010
A	Acenaphthene	83-32-9	0.000050	0.000043	0.000027	0.00010
A	Acenaphthylene	208-96-8	0.000050	0.000048	0.000015	0.00010
A	Anthracene	120-12-7	0.000050	0.000041	0.000014	0.00010
A	Bis(2-ethylhexyl)phthalate	117-81-7	0.00010	0.00013	0.000037	0.00020
A	Dibenzofuran	132-64-9	0.00010	0.000072	0.000020	0.00010
A	Di-n-butyl phthalate	84-74-2	0.00010	0.000092	0.000020	0.00020
A	Fluoranthene	206-44-0	0.000050	0.000049	0.000010	0.00010
A	Fluorene	86-73-7	0.000050	0.000041	0.000030	0.00010
A	Naphthalene	91-20-3	0.000050	0.000050	0.000020	0.00010
A	Phenanthrene	85-01-8	0.000050	0.000045	0.000021	0.00010
A	Phenol	108-95-2	0.00010	0.000071	0.000035	0.00020
A	Pyrene	129-00-0	0.000050	0.000048	0.000019	0.00010
S	2,4,6-Tribromophenol	118-79-6	0	0	0	0.00020
S	2-Fluorobiphenyl	321-60-8	0	0	0	0.00020
S	2-Fluorophenol	367-12-4	0	0	0	0.00020
S	4-Terphenyl-d14	1718-51-0	0	0	0	0.00020
S	Nitrobenzene-d5	4165-60-0	0	0	0	0.00020
S	Phenol-d6	13127-88-3	0	0	0	0.00020

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**QC BATCH REPORT**

Batch ID: 124150		Instrument: SV-7		Method: SW8270						
MBLK	Sample ID: MBLK-124150	Units: ug/L			Analysis Date: 11-Jan-2018 13:01					
Client ID:	Run ID: SV-7_308848	SeqNo: 4389850	PrepDate: 09-Jan-2018	DF: 1						
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	U	0.10								
Acenaphthene	U	0.10								
Acenaphthylene	U	0.10								
Anthracene	U	0.10								
Bis(2-ethylhexyl)phthalate	U	0.20								
Dibenzofuran	U	0.10								
Di-n-butyl phthalate	U	0.20								
Fluoranthene	U	0.10								
Fluorene	U	0.10								
Naphthalene	U	0.10								
Phenanthrene	U	0.10								
Phenol	U	0.20								
Pyrene	U	0.10								
<i>Surr: 2,4,6-Tribromophenol</i>	3.463	0.20	5	0	69.3	34 - 129				
<i>Surr: 2-Fluorobiphenyl</i>	4.68	0.20	5	0	93.6	40 - 125				
<i>Surr: 2-Fluorophenol</i>	4.009	0.20	5	0	80.2	20 - 120				
<i>Surr: 4-Terphenyl-d14</i>	4.916	0.20	5	0	98.3	40 - 135				
<i>Surr: Nitrobenzene-d5</i>	5.171	0.20	5	0	103	41 - 120				
<i>Surr: Phenol-d6</i>	4.389	0.20	5	0	87.8	20 - 120				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**QC BATCH REPORT**

Batch ID: 124150		Instrument: SV-7		Method: SW8270						
LCS	Sample ID: LCS-124150	Units: ug/L			Analysis Date: 11-Jan-2018 13:20					
Client ID:	Run ID: SV-7_308848	SeqNo: 4389851		PrepDate: 09-Jan-2018		DF: 1				
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
2-Methylnaphthalene	4.034	0.10	5	0	80.7	50 - 120				
Acenaphthene	3.595	0.10	5	0	71.9	45 - 120				
Acenaphthylene	3.901	0.10	5	0	78.0	47 - 120				
Anthracene	3.796	0.10	5	0	75.9	45 - 120				
Bis(2-ethylhexyl)phthalate	4.374	0.20	5	0	87.5	40 - 139				
Dibenzofuran	3.745	0.10	5	0	74.9	50 - 120				
Di-n-butyl phthalate	4.338	0.20	5	0	86.8	45 - 123				
Fluoranthene	4.461	0.10	5	0	89.2	45 - 125				
Fluorene	3.796	0.10	5	0	75.9	49 - 120				
Naphthalene	3.878	0.10	5	0	77.6	45 - 120				
Phenanthrene	3.825	0.10	5	0	76.5	45 - 121				
Phenol	3.202	0.20	5	0	64.0	20 - 124				
Pyrene	4.315	0.10	5	0	86.3	40 - 130				
<i>Surr: 2,4,6-Tribromophenol</i>	<i>4.041</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>80.8</i>	<i>34 - 129</i>				
<i>Surr: 2-Fluorobiphenyl</i>	<i>4.239</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>84.8</i>	<i>40 - 125</i>				
<i>Surr: 2-Fluorophenol</i>	<i>3.337</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>66.7</i>	<i>20 - 120</i>				
<i>Surr: 4-Terphenyl-d14</i>	<i>4.389</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>87.8</i>	<i>40 - 135</i>				
<i>Surr: Nitrobenzene-d5</i>	<i>4.472</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>89.4</i>	<i>41 - 120</i>				
<i>Surr: Phenol-d6</i>	<i>3.705</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>74.1</i>	<i>20 - 120</i>				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**QC BATCH REPORT**

Batch ID: 124150		Instrument: SV-7		Method: SW8270						
MS		Sample ID: HS18010144-12MS		Units: ug/L		Analysis Date: 11-Jan-2018 15:38				
Client ID: WG-1620-P12-20180104		Run ID: SV-7_308848		SeqNo: 4389853		PrepDate: 09-Jan-2018		DF: 1		
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
2-Methylnaphthalene	3.552	0.10	5	0	71.0	50 - 120				
Acenaphthene	3.381	0.10	5	0	67.6	45 - 120				
Acenaphthylene	3.524	0.10	5	0	70.5	47 - 120				
Anthracene	4.017	0.10	5	0.03577	79.6	45 - 120				
Bis(2-ethylhexyl)phthalate	5.445	0.20	5	0.1242	106	40 - 139				
Dibenzofuran	3.404	0.10	5	0	68.1	50 - 120				
Di-n-butyl phthalate	5.024	0.20	5	0.02183	100	45 - 123				
Fluoranthene	4.979	0.10	5	0	99.6	45 - 125				
Fluorene	3.523	0.10	5	0	70.5	49 - 120				
Naphthalene	3.569	0.10	5	0	71.4	45 - 120				
Phenanthrene	3.955	0.10	5	0	79.1	45 - 121				
Phenol	3.019	0.20	5	0	60.4	20 - 124				
Pyrene	4.815	0.10	5	0.09701	94.4	40 - 130				
<i>Surr: 2,4,6-Tribromophenol</i>	<i>4.247</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>84.9</i>	<i>34 - 129</i>				
<i>Surr: 2-Fluorobiphenyl</i>	<i>3.664</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>73.3</i>	<i>40 - 125</i>				
<i>Surr: 2-Fluorophenol</i>	<i>2.992</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>59.8</i>	<i>20 - 120</i>				
<i>Surr: 4-Terphenyl-d14</i>	<i>4.982</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>99.6</i>	<i>40 - 135</i>				
<i>Surr: Nitrobenzene-d5</i>	<i>3.821</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>76.4</i>	<i>41 - 120</i>				
<i>Surr: Phenol-d6</i>	<i>3.298</i>	<i>0.20</i>	<i>5</i>	<i>0</i>	<i>66.0</i>	<i>20 - 120</i>				

Note: See Qualifiers Page for a list of qualifiers and their explanation.



**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**QC BATCH REPORT**

Batch ID: 124150		Instrument: SV-7		Method: SW8270						
MSD		Sample ID: HS18010144-12MSD		Units: ug/L		Analysis Date: 11-Jan-2018 15:58				
Client ID: WG-1620-P12-20180104		Run ID: SV-7_308848		SeqNo: 4389854		PrepDate: 09-Jan-2018		DF: 1		
Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	3.256	0.10	5	0	65.1	50 - 120	3.552	8.69	20	
Acenaphthene	2.765	0.10	5	0	55.3	45 - 120	3.381	20	20	R
Acenaphthylene	3.124	0.10	5	0	62.5	47 - 120	3.524	12	20	
Anthracene	3.542	0.10	5	0.03577	70.1	45 - 120	4.017	12.6	20	
Bis(2-ethylhexyl)phthalate	4.494	0.20	5	0.1242	87.4	40 - 139	5.445	19.1	20	
Dibenzofuran	2.972	0.10	5	0	59.4	50 - 120	3.404	13.5	20	
Di-n-butyl phthalate	4.144	0.20	5	0.02183	82.5	45 - 123	5.024	19.2	20	
Fluoranthene	4.369	0.10	5	0	87.4	45 - 125	4.979	13.1	20	
Fluorene	3.083	0.10	5	0	61.7	49 - 120	3.523	13.3	20	
Naphthalene	3.115	0.10	5	0	62.3	45 - 120	3.569	13.6	20	
Phenanthrene	3.596	0.10	5	0	71.9	45 - 121	3.955	9.5	20	
Phenol	2.679	0.20	5	0	53.6	20 - 124	3.019	11.9	20	
Pyrene	4.278	0.10	5	0.09701	83.6	40 - 130	4.815	11.8	20	
<i>Surr: 2,4,6-Tribromophenol</i>	3.666	0.20	5	0	73.3	34 - 129	4.247	14.7	20	
<i>Surr: 2-Fluorobiphenyl</i>	3.18	0.20	5	0	63.6	40 - 125	3.664	14.1	20	
<i>Surr: 2-Fluorophenol</i>	2.59	0.20	5	0	51.8	20 - 120	2.992	14.4	20	
<i>Surr: 4-Terphenyl-d14</i>	4.282	0.20	5	0	85.6	40 - 135	4.982	15.1	20	
<i>Surr: Nitrobenzene-d5</i>	3.258	0.20	5	0	65.2	41 - 120	3.821	15.9	20	
<i>Surr: Phenol-d6</i>	2.906	0.20	5	0	58.1	20 - 120	3.298	12.6	20	

The following samples were analyzed in this batch:

HS18010144-01	HS18010144-02	HS18010144-03	HS18010144-04
HS18010144-05	HS18010144-06	HS18010144-07	HS18010144-08
HS18010144-09	HS18010144-10	HS18010144-11	HS18010144-12
HS18010144-13	HS18010144-14		

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Client:** Pastor, Behling & Wheeler, LLC  
**Project:** Houston TX-Wood Preserving Works  
**WorkOrder:** HS18010144

**QUALIFIERS,  
ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

<b>Acronym</b>	<b>Description</b>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<b>Unit Reported</b>	<b>Description</b>
mg/L	Milligrams per Liter

**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

<b>Agency</b>	<b>Number</b>	<b>Expire Date</b>
Arkansas	17-027-0	27-Mar-2018
California	2919 2016-2018	31-Jul-2018
Illinois	004112	09-May-2018
Kentucky	123043	30-Apr-2018
Louisiana	03087 2017-2017	30-Jun-2018
North Dakota	R193 2017-2017	30-Apr-2018
Oklahoma	2017-088	31-Aug-2018
Texas	T104704231-17-19	30-Apr-2018
North Carolina	624-2018	31-Dec-2018

**Sample Receipt Checklist**

Client Name: PBW  
 Work Order: HS18010144

Date/Time Received: **05-Jan-2018 08:00**  
 Received by: **JRM**

Checklist completed by: Jared R. Makan 5-Jan-2018  
 eSignature Date

Reviewed by: Dane J. Wacasey 9-Jan-2018  
 eSignature Date

Matrices: **Water**

Carrier name: **Client**

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- TX1005 solids received in hermetically sealed vials? Yes  No  N/A
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No

Temperature(s)/Thermometer(s): 1.5c/0.9c, 1.7c/1.1c, 1.8c/1.2c UC/C IR25

Cooler(s)/Kit(s): 43556, 43588, 43545

Date/Time sample(s) sent to storage: 01/05/2018 10:20

Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted

Water - pH acceptable upon receipt? Yes  No  N/A

pH adjusted? Yes  No  N/A

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:



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Fort Collins, CO  
+1 970 490 1511

# Chain of Custody Form

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South Charleston, WV  
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Everett, WA  
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Holland, MI  
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Page 1 of 2

Middletown, PA  
+1 717 944 5541

Salt Lake City, UT  
+1 801 266 7700

York, PA  
+1 717 505 5280

COC ID: 176678

Customer Information		Project Information		ALS Project Manager:		ALS Work Order #:	
Purchase Order	UPRR / Kevin Peterburs	Project Name	Houston TX-Wood Preserving Works	A	8270_LOW_W (5632532 ATZ SemiVolatiles)		
Work Order		Project Number	1620-05-Rev0 92688	B	8270_LOW_W (5632532 BTZ SemiVolatiles)		
Company Name	Pastor, Behling & Wheeler, LLC	Bill To Company	Union Pacific Railroad- A/P	C	8270_LOW_W (5632532 ATZ & BTZ SemiVolatiles)		
Send Report To	Eric Matzner	Invoice Attn	Accounts Payable	D	MS/MSD		
Address	2201 Double Creek Drive Suite 4004	Address	1400 Douglas Street Stop 0750	E	<p style="text-align: center;"><b>HS18010144</b></p> <p style="text-align: center;">Pastor, Behling &amp; Wheeler, LLC Houston TX-Wood Preserving Works</p> 		
				F			
City/State/Zip	Round Rock, TX 78664	City/State/Zip	Omaha NE 681790750	G			
Phone	(512) 671-3434	Phone		H			
Fax	(512) 671-3446	Fax		I			
e-Mail Address	eric.matzner@pbwllc.com	e-Mail Address		J			

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	WG-1620-MW11A-20180103	1-3-18	1640	GW	8	2	X										
2	WG-1620-MW11B-20180103	↓	1720	GW		2		X									
3	WG-1620-FB01-20180103	↓	1730	GW		2			X								
4	WG-1620-MW10A-20180104	1-4-18	0745	GW		2	X										
5	WG-1620-MW10B-20180104	↓	0830	GW		2		X									
6	WG-1620-MW02-20180104		0920	GW		2	X										
7	WG-1620-MW01A-20180104		1020	GW		2	X										
8	WG-1620-FD01-20180104		1020	GW		2	X										
9	WG-1620-PI0-20180104		1130	GW		2			X								
10	WG-1620-FD02-20180104		1130	GW		2			X								

Sampler(s) Please Print & Sign <b>JOHN BRAYON</b> <i>John Bray</i>		Shipment Method <b>HAND DELIVERED</b>		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour			Other _____		Results Due Date:	
Relinquished by: <i>John Bray</i>	Date: 1-5-18	Time: 08:00	Received by:	Notes: UPRR Houston MWPW						
Relinquished by:	Date: 1/5/18	Time: 08:00	Received by (Laboratory): <i>J. Matzner</i>	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)				
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	43556	1.5	<input type="checkbox"/> Level II Std QC	<input checked="" type="checkbox"/> TRRP Checklist			
				43588	1.7	<input type="checkbox"/> Level III Std QC/Raw Date	<input type="checkbox"/> TRRP Level IV			
				43545	1.8	<input type="checkbox"/> Level IV SW848/CLP				
						<input type="checkbox"/> Other				

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>4</sub> 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.  
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.  
3. The Chain of Custody is a legal document. All information must be completed accurately.

1625 CF-0.6  
Return 24682

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# Chain of Custody Form

Page 2 of 2

COC ID: 176679

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+1 610 948 4903

Salt Lake City, UT  
+1 801 266 7700

South Charleston, WV  
+1 304 356 3168

York, PA  
+1 717 505 5280

<b>Customer Information</b>		<b>Project Information</b>		<b>ALS Project Manager:</b>		<b>ALS Work Order #:</b>		
Purchase Order	UPRR / Kevin Peterburs	Project Name	Houston TX-Wood Preserving Works	A	8270_LOW_W (5632532 ATZ SemiVolatiles)			
Work Order		Project Number	1620-05-Rev0 92688	B	8270_LOW_W (5632532 BTZ SemiVolatiles)			
Company Name	Pastor, Behling & Wheeler, LLC	Bill To Company	Union Pacific Railroad- A/P	C	8270_LOW_W (5632532 ATZ & BTZ SemiVolatiles)			
Send Report To	Eric Matzner	Invoice Attn	Accounts Payable	D	<p style="text-align: center;"><b>MS/MSD</b></p> <p style="text-align: center;"><b>HS18010144</b></p> <p style="text-align: center;">Pastor, Behling &amp; Wheeler, LLC Houston TX-Wood Preserving Works</p> 			
Address	2201 Double Creek Drive	Address	1400 Douglas Street	E				
	Suite 4004		Stop 0750	F				
City/State/Zip	Round Rock, TX 78664	City/State/Zip	Omaha NE 681790750	G				
Phone	(512) 671-3434	Phone		H				
Fax	(512) 671-3446	Fax		I				
e-Mail Address	eric.matzner@pbwllc.com	e-Mail Address		J				

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	WG-1620-MW07-20180104	1-4-18	1215	GW	8	2	X										
2	WG-1620-P12-20180104	↓	1405	GW		4		X		X							
3	WG-1620-MW08-20180104	↓	1510	GW		2	X										
4	WG-1620-FB02-20180104	↓	1530	GW		2			X								
5																	
6																	
7																	
8																	
9																	
10																	

<b>Sampler(s) Please Print &amp; Sign</b> JOHN BRAYTON <i>John B</i>		<b>Shipment Method</b> HAND DELIVERED		<b>Required Turnaround Time: (Check Box)</b> <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour				<b>Results Due Date:</b>	
<b>Relinquished by:</b> <i>John B</i>		<b>Date:</b> 1-5-18		<b>Time:</b> 08:00		<b>Received by:</b> <i>J. Matzner</i>		<b>Notes:</b> UPRR Houston MWPW	
<b>Relinquished by:</b> <i>John B</i>		<b>Date:</b> 1/5/18		<b>Time:</b> 08:00		<b>Received by (Laboratory):</b> <i>J. Matzner</i>		<b>QC Package: (Check One Box Below)</b>	
<b>Logged by (Laboratory):</b>		<b>Date:</b>		<b>Time:</b>		<b>Checked by (Laboratory):</b>		<input type="checkbox"/> Level II Std QC <input type="checkbox"/> Level III Std QC/Raw Date <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other	
<b>Preservative Key:</b> 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035								Cooler ID: 43556, 43588, 43545 Cooler Temp.: 1.5, 1.7, 1.8	

- Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.  
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.  
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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**APPENDIX D**

# Waste Manifest



Please print or type: (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number <b>TXD000820266 / 31547</b>	2. Page 1 of 1	3. Emergency Response Phone <b>877-577-2669</b>	4. Manifest Tracking Number <b>011316843 FLE</b>			
5. Generator's Name and Mailing Address <b>Union Pacific Railroad 301 NE 2nd Ave. ATTN: Traci Rhode Portland, OR 97232</b>			Generator's Site Address (if different than mailing address) <b>UP Railroad Houston Wood Preserving Works 4810 Liberty Rd Houston, TX 77026</b>					
6. Transporter 1 Company Name <b>Stericycle Specialty Waste Solutions Inc</b>			Phone: <b>872-328-1200</b> State ID#: <b>88922 / H-1495</b>		U.S. EPA ID Number <b>MNS000110924</b>			
7. Transporter 2 Company Name <b>Clean Harbors Env. Svcs. Inc.</b>					U.S. EPA ID Number <b>MAD 039322250</b>			
8. Designated Facility Name and Site Address <b>Clean Harbors Deer Park, L.P. 2027 Independence Pkwy South LaPorte, TX 77571</b>			State ID#: <b>58889</b>		U.S. EPA ID Number <b>TXD055141378</b>			
Facility's Phone: <b>281-830-2300</b>								
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	<input checked="" type="checkbox"/>	1. <b>RQ, NA3082, Hazardous waste, liquid, n.o.s. (purge water contains creosote), PG III, ERG 171</b>		No. <b>004</b>	Type <b>DM</b>	<b>220</b>	<b>G</b>	<b>0914101H F034</b>
		2.						
		3.						
		4.						
14. Special Handling Instructions and Additional Information <b>01:Purge water WR # 15958 (PF:CH1269232) 55G</b>								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offeror's Printed/Typed Name <b>X Kevin Peterburs</b>			Signature <b>X Kevin Peterburs</b>			Month Day Year <b>4/13/18</b>		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name <b>Thomas Kelly</b>			Signature <b>Thomas Kelly</b>			Month Day Year <b>4/13/18</b>		
Transporter 2 Printed/Typed Name <b>A. Gohring</b>			Signature <b>A. Gohring</b>			Month Day Year <b>4/20/18</b>		
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
Manifest Reference Number: _____								
18b. Alternate Facility (or Generator) U.S. EPA ID Number _____								
Facility's Phone: _____								
18c. Signature of Alternate Facility (or Generator) Month Day Year _____								
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1. <b>01: H040</b>		2.		3.		4.		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name <b>Kim Bravene</b>			Signature <b>Kim Bravene</b>			Month Day Year <b>4/30/18</b>		



## POC Concentration vs. Time Graphs

Figure E-1  
2-Methylnaphthalene Concentrations vs Time - A-TZ Unit  
UPRR HWPW Facility - RCRA SWMU No. 1

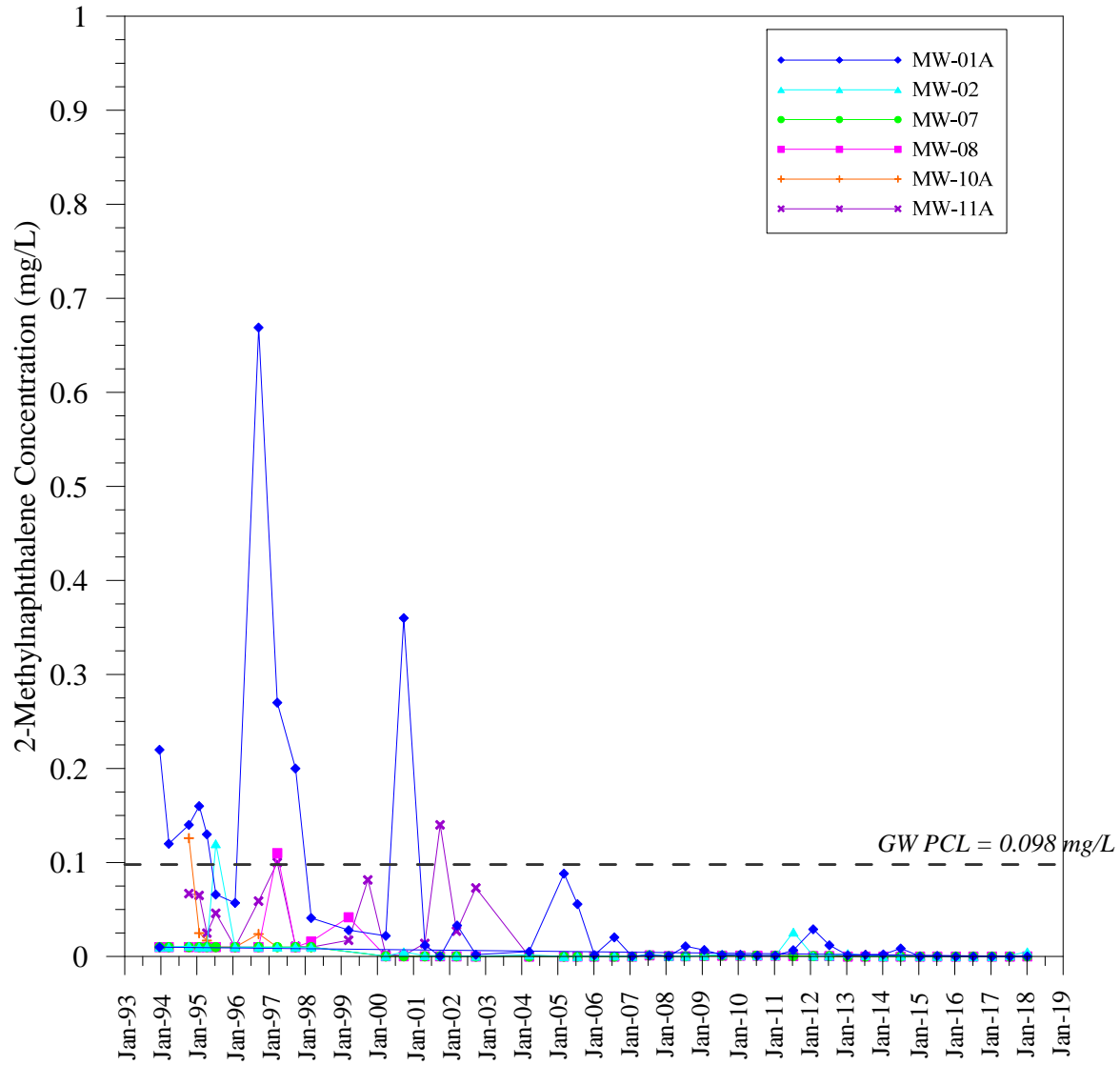


Figure E-2  
Dibenzofuran Concentrations vs Time - A-TZ Unit  
UPRR HWPW Facility - RCRA SWMU No. 1

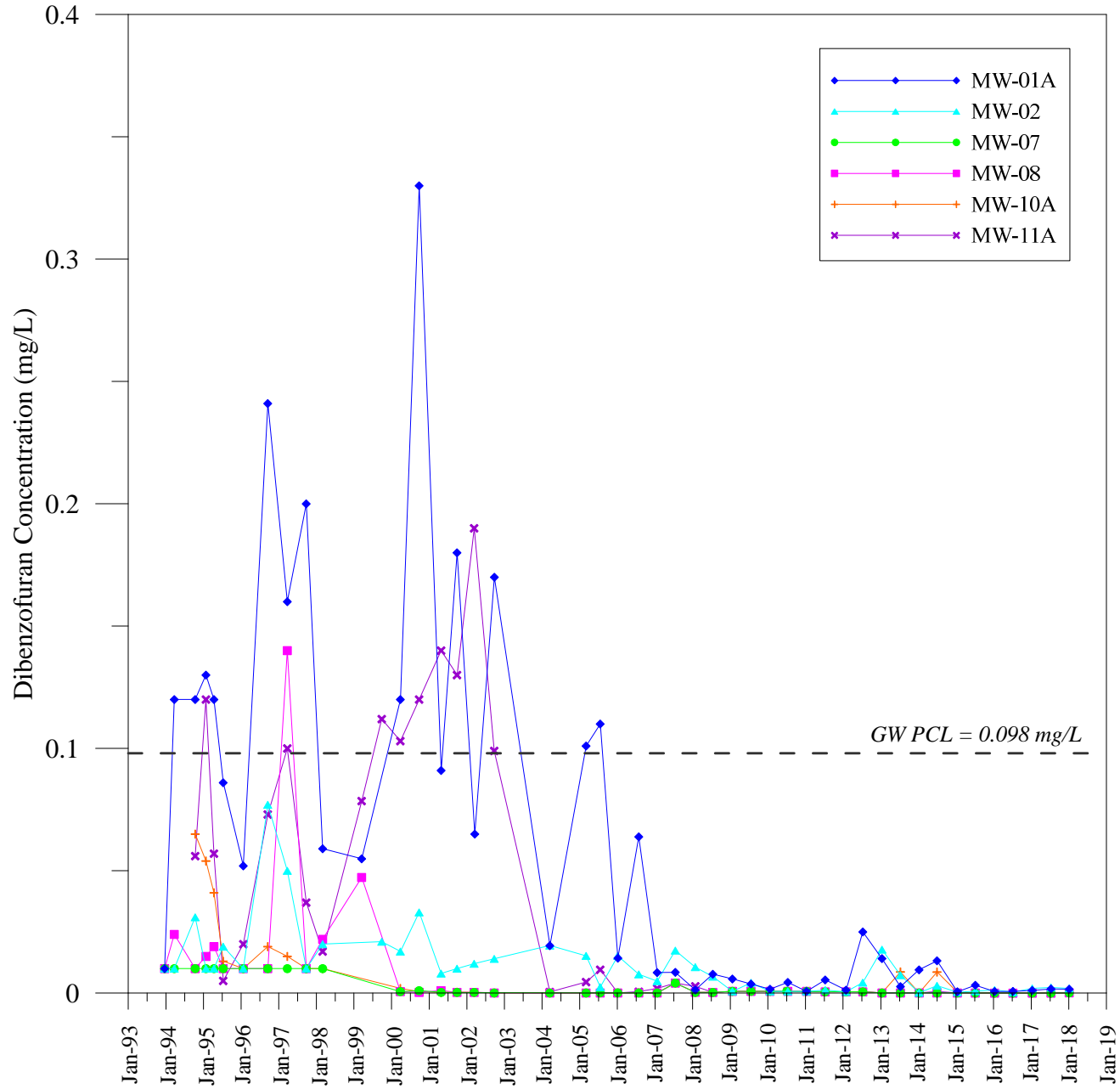


Figure E-3  
Naphthalene Concentrations vs Time - A-TZ Unit  
UPRR HWPW Facility - RCRA SWMU No. 1

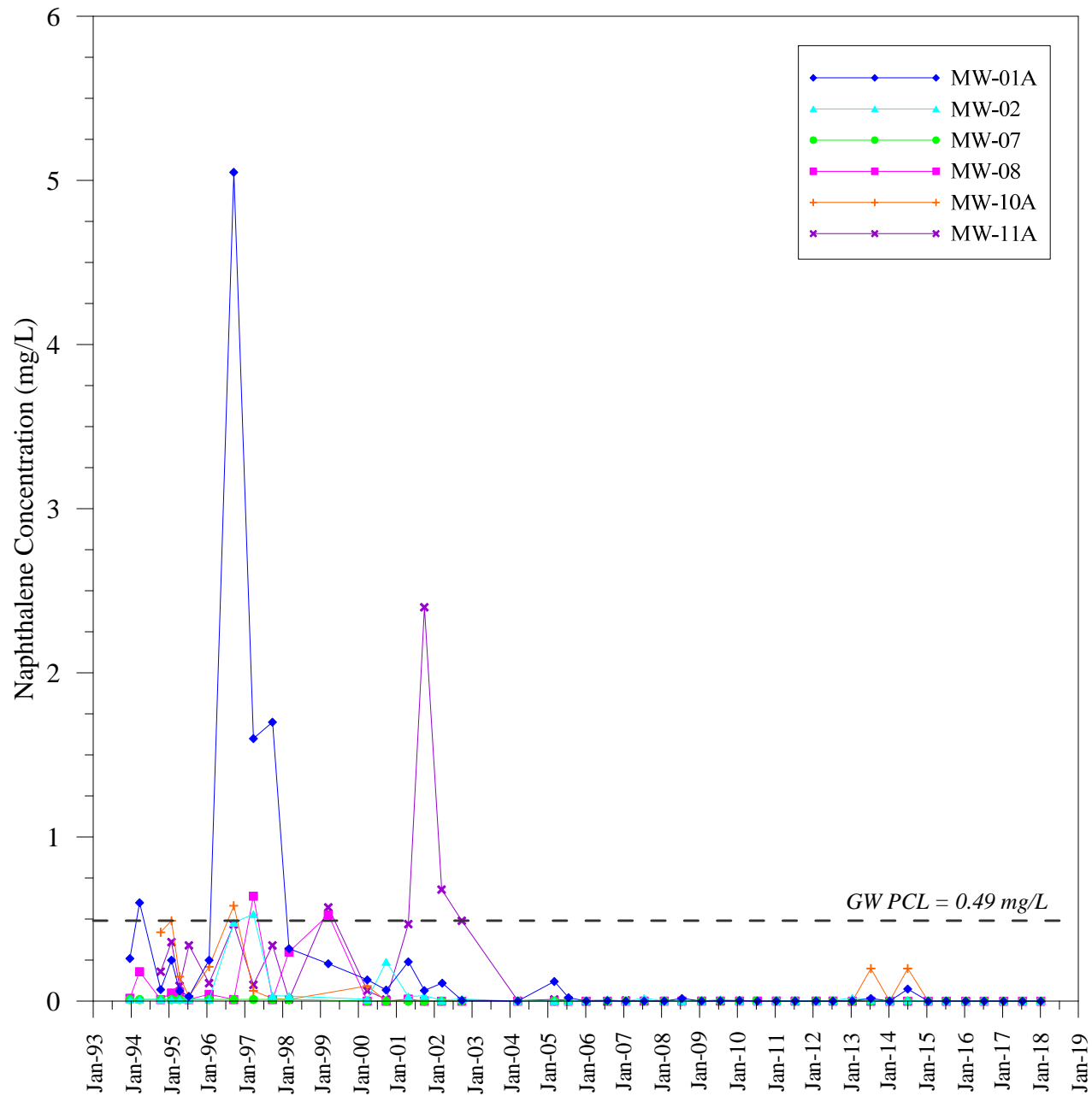


Figure E-4  
 Dibenzofuran Concentrations vs Time - B-TZ Unit  
 UPRR HWPW Facility - RCRA SWMU No. 1

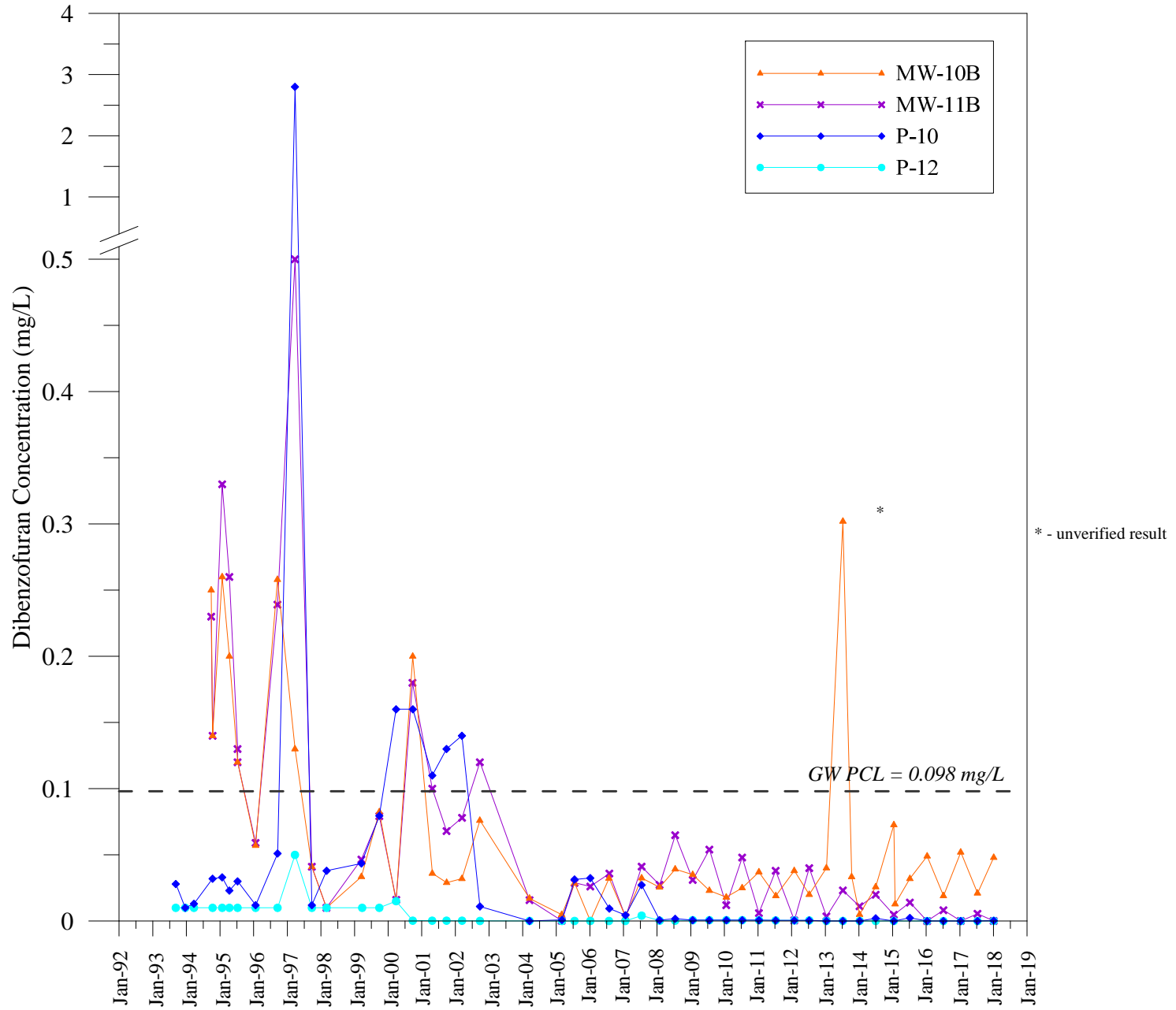
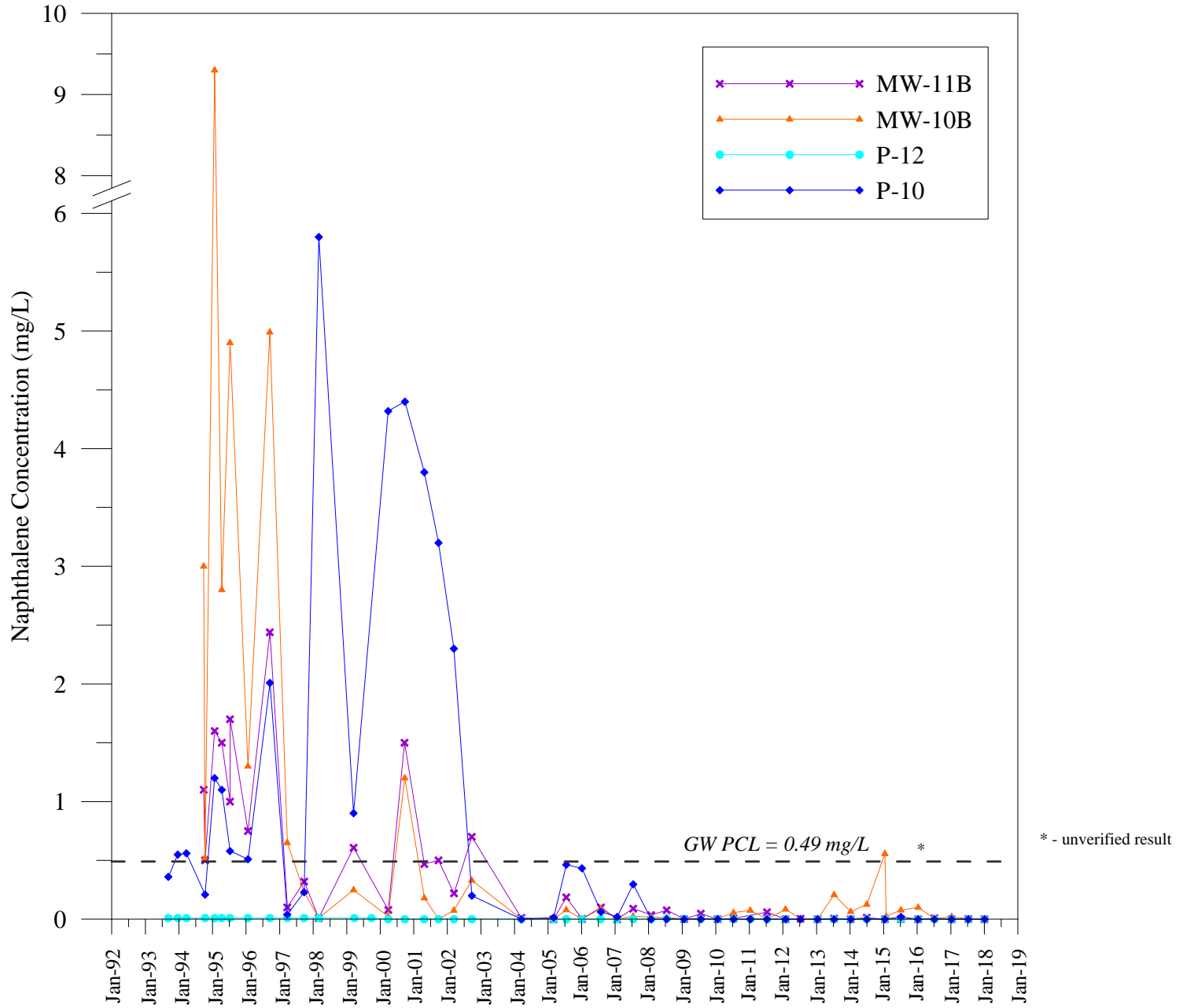


Figure E-5  
 Naphthalene Concentrations vs Time - B-TZ Unit  
 UPRR HWPW Facility - RCRA SWMU No. 1



# Updated Compliance Schedule

ID	Task Name/Permit or CP Section No.	2018												2019														
		4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
		O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1	<b>Facility Management</b>																											
2	<b>RCRA Permit/Compliance Plan Renewal and Major Amendments</b>																											
3	Draft Permit Renewal/Compliance Plan and Major Amendments																											
4	TCEQ Review of Permit Renewal/Major Amendments																											
5	Prepare Response to Technical NOD and Submit Permit Renewal/Major Amendments Revision No. 2																											
6	TCEQ Review of Technical NOD Response, Permit Revision No. 2																											
7	Respond to TCEQ 2nd Technical NOD Letter, Submit Revision No. 3																											
8	TCEQ Review of 2nd Technical NOD Response, Permit Revision No. 3																											
9	Respond to TCEQ 3rd Technical NOD Letter, Submit Revision No. 4																											
10	TCEQ Review of 3rd Technical NOD Response, Permit Revision No. 4																											
11	Groundwater Investigation/POE Well Installation																											
12	TCEQ Review of GW Inv/POE Data for RAP																											
13	TCEQ Issuance Draft Permit																											
14	General Inspection Requirements (quarterly) [Permit Section III.D; Table III.D]																											
58	<b>Corrective Measures Implementation (CMI)/Response Action Plan (RAP) [CP Section VIII.F]</b>																											
59	TCEQ Review of RAP (part of Compliance Plan)																											
60	Prepare RAP Revision No. 1 (Compliance Plan Rev2)																											
61	Prepare RAP Revision No. 2 (Compliance Plan Rev3)																											
62	TCEQ Review of RAP (part of Compliance Plan)																											
63	Prepare RAP Revision No. 3 (Compliance Plan Rev4)																											
64	Prepare RAP Revision No. 4 (Compliance Plan Rev 5)																											
65	Implement Corrective Action as detailed in RAP (pending approval of Permit Renewal/Compliance Plan)																											
66	<b>Ground-Water Monitoring Program [Permit Section VI.A.; CP Section VI.]</b>																											
67	Water Level Measurements (Semiannually) [CP Section VI.C.4.a]1																											
96	Monitoring Well Inspections (Semiannually) [CP Section VI.C.4.a]1																											
125	Ground Water Sampling and Data Evaluation (2nd Semiannual) [CP Section VI.C.2]																											
126	Ground Water Sampling and Data Evaluation (1st Semiannual) [CP Section VI.C.2]																											
127	Ground Water Sampling and Data Evaluation (2nd Semiannual) [CP Section VI.C.2]																											
128	Ground Water Sampling and Data Evaluation (1st Semiannual) [CP Section VI.C.2]																											
129	Ground Water Sampling and Data Evaluation (2nd Semiannual) [CP Section VI.C.2]																											
130	<b>Response and Reporting [Permit Section II.B.7; CP Section VII.]</b>																											
131	First Semi-Annual GW Monitoring Report - July 21 [CP Section VII.C.2]																											
147	Second Semi-Annual GW Monitoring Report - January 21 [CP Section VII.C.2]																											

Compliance Schedule UPRR Houston Wood Preserving Works Site Houston, Texas	Task		Project Summary		Manual Summary Rollup	
	Milestone		External Milestone		Manual Summary	
	Summary		Inactive Task		Start-only	
	Rolled Up Task		Inactive Task		Finish-only	
	Rolled Up Milestone		Inactive Milestone		Progress	
	Rolled Up Progress		Inactive Summary		Deadline	
	Split		Manual Task			
	External Tasks		Duration-only			



# Laboratory Data QA/QC Report Checklist

**FORMER HOUSTON WOOD PRESERVING WORKS  
LABORATORY DATA QA/QC REPORT CHECKLIST  
ANALYTICAL REPORT HS17070702  
July 25, 2017**

<b>Facility Name: Former Houston Wood Preserving Works SWMU 1</b>	<b>Permit/ISW Reg No.: 50343</b>	<b>For TCEQ Use Only</b>	
<b>Laboratory Name: ALS Environmental</b>	<b>EPA I.D. No.:</b>	<b>Project Mgr:</b>	
<b>Reviewer Name: Michelle Hermiston</b>			
<b>Date: 5/21/18</b>	<b>Date:</b>		
Description	Status	More in Case Narrative (Check Box)	Technically Complete
1. Were laboratory analyses performed by a laboratory accredited by TCEQ, whose accreditation included the matrix (ces), methods, and parameters associated with the data?  If not was an explanation given in the Case-Narrative (e.g., laboratory exemption, accreditation for method /parameter not available from TCEQ)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
2. Was a Case Narrative from laboratory (QC data description summary) submitted with the data set?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
3. Are the sample collection, preparation and analyses methods listed in the permit, preparation and analysis methods listed in the permit or other documents specifying criteria the ones used on the final report?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
4. Were there any modifications to the sample collection, preparation and/or analytical methodology (ies)?  If so was the description included on the Case-Narrative?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
5. Were all samples prepared and analyzed within required holding times?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
6. Were samples properly preserved according to method and QAPP requirements?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>

Description	Status	More in Case Narrative (Check Box)	Technically Complete
7. Have the method detection limits (MDL) and/or practical quantitation limit (PQL) been defined in the final report? Note: NELAC uses terms limit of detection (LOD) and Limit of Quantitation respectively.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
8. Do parameters listed on final report match regulatory parameters of concern (POC) specified in permit and/or Waste Analysis Plan or other required document? Note: POC may also be referred to chemicals of concern (COCs)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
9. Are the POCs included within the analytical methods target analyte list?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
10. Were the appropriate type(s) of blanks analyzed?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	
11. Did any blank samples contain POC concentrations >5x or 10x of MDL? If so, please explain potential bias?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
12. Were method blanks taken through the entire preparation and analytical process?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
13. Did the calibration curve and continuing calibration verification meet regulatory (e.g. NELAC Standards) method specifications (No. of standards, acceptance criteria, etc.)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
14. Do the initial calibration standards include a concentration below the regulatory limit/decision level? If not please explain? If an MDL and PQL are each used on a report then the relationship between the two must be defined for each method.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
15. Were manual peak integrations performed? If so pre and post chromatograms and method change histories may be requested?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
16. Were all results bracketed by a lower and upper range calibration standard?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
17. Was any result reported outside of the range of the calibration standards?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
18. Were all matrix spike (MS) and MS duplicate (MSD) recoveries within the data decision making goals of QC data in the RCRA/UIC QAPP and/or within the laboratories control charts? If not were data flagged with explanation in case narrative?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
19. Were all of the MS and MSD relative percent differences (RPDs) within the data decision making goals of QC data in the RCRA/UIC QAPP? If not were data flagged with explanation in case narrative?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
20. Were all laboratory control sample (LCS) recoveries at least within the MS and MSD ranges of recoveries and within laboratories control charts? If not were data flagged with explanation in Case Narrative?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>

Description	Status	More in Case Narrative (Check Box)	Technically Complete
21. Were all POCs (COCs) in the LCS?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
22. Were the MS and MSD from samples collected for this work order or other samples in the analytical batch as defined by the NELAC Standards? <i>This information is used to identify factors contributing to matrix interferences. It should not be assumed, unless it is understood by the laboratory, that samples relating to this report were the ones selected to be fortified with the POCs.</i>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
23. Were any of the samples diluted? If so were appropriate calculations made to the MDL and/or PQL of the final report?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	<input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>

**LABORATORY DATA REPORT QA/QC CHECKLIST**  
**LABORATORY CASE-NARRATIVE**  
**(To accompany laboratory checklist)**

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	<b>Facility Name: Former Houston Wood Preserving Works SWMU 1</b>	<b>Permit/ISW Reg No.: 50343</b>
	<b>Laboratory Name: ALS Environmental</b>	<b>EPA I.D. No.:</b>
Method No.	Non-conformance Description	Method Modification Description