

2019 Annual Report

Former Kelly-Moore Manufacturing Facility 5400-5800 Airport Way South Seattle, Washington Facility/Site #2163 VCP #NW2305 Project # 0146970060

Prepared for:

Kelly-Moore Paint Company, Inc. 301 W Hurst Boulevard, Hurst, Texas 76053

September 28, 2020



2019 Annual Report

Former Kelly-Moore Manufacturing Facility 5400-5800 Airport Way South Seattle, Washington Facility/Site #2163 VCP #2305 Project # 0146970060

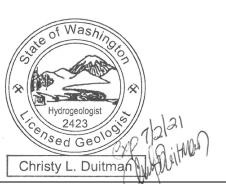
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September 28, 2020



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List of Acronyms and Abbreviations

µg/L	micrograms per liter
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
BNSF	BNSF Railway Company
CATOX	catalytic thermal oxidizer
Ecology	Washington Department of Ecology
EPA	U.S. Environmental Protection Agency
FID	flame ionization detector
Kelly-Moore	Kelly-Moore Paint Company, Inc.
MRE	destruction removal efficiency
MTCA	Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988
O&M	operation and maintenance
PAHs	polycyclic aromatic hydrocarbons
PSCAA	Puget Sound Clean Air Agency
Site	former Kelly-Moore manufacturing facility located at 5400-5800 Airport Way South, Seattle, Washington
SVE	soil vapor extraction
ТРН	total petroleum hydrocarbons
TPH-D	total petroleum hydrocarbons in the diesel range
TPH-G	total petroleum hydrocarbons in the gasoline range
TPH-O	total petroleum hydrocarbons in the motor oil range
VCP	Washington State Voluntary Cleanup Program
VOCs	volatile organic compounds
Wood	Wood Environment & Infrastructure Solutions, Inc.



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1.0 Introduction

1.1 Purpose

Wood Environment & Infrastructure Solutions, Inc. (Wood), prepared this report on behalf of Kelly-Moore Paint Company, Inc. (Kelly-Moore), for the former Kelly-Moore manufacturing facility located at 5400-5800 Airport Way South, Seattle, Washington (Site; Figure 1). Kelly-Moore's objective is to conduct remedial action at the Site in compliance with requirements established by the Washington State Department of Ecology (Ecology) under the state Model Toxics Control Act (MTCA) via the Washington State Voluntary Cleanup Program (VCP) and attain No Further Action status for the Site.

This report presents the results of groundwater and Site monitoring activities as summarized below.

- Dry season groundwater monitoring (August 2019);
- Wet season groundwater monitoring (March 2020);
- Soil vapor extraction (SVE) system operation and maintenance (O&M; June 2019 to May 2020); and
- Air sparge system O&M (June 2019 to May 2020).

Groundwater monitoring results and O&M activities from May 2018 through May 2019 were reported in the 2018 *Summary of Investigations and Remedial Actions* report dated October 8, 2019 (Wood, 2019b).

1.2 Background

The Site is located on the east side of Airport Way South at the intersection of South Lucile Street and Airport Way South in the Georgetown neighborhood of Seattle, Washington (Figure 1), and covers approximately 2.7 acres. The Site is bordered on the north by BNSF Railway Company (BNSF) tracks and the Olympic Foundry, on the west by Airport Way South and the Airport Way South overpass, on the east by BNSF tracks and a steep hillside, and on the south by an Interstate 5 connector ramp overpass (Figure 1).

The Site has been used for a variety of industrial purposes since the early 1900s, and Kelly-Moore acquired the Site in 1994. Kelly-Moore used portions of the Site as a paint manufacturing plant for blending paints and pigments between approximately 1994 and 2008, and vacated the property by 2010. Kelly-Moore sold the southern portion of the Site to JST Georgetown, LLC, in 2011, and sold the northern portion of the Site to NCD GeorgeTown, LLC, in 2014. The new owners of the northern parcel demolished all of the former buildings and warehouses in 2015, during which time Kelly-Moore directed Wood (formerly Amec Foster Wheeler Environment & Infrastructure, Inc. [Amec Foster Wheeler]) to perform additional interim remedial actions and address known areas of contamination that were not accessible prior to the demolition. Construction of the new building on the northern parcel was completed in 2016. Elysian Brewing Company is the primary tenant of the new building constructed on this parcel, using it for brewing beer. The southern parcel is also leased by Elysian Brewing Company, which moved into the warehouse in 2011 to add bottling capacity to its operations.

2.0 Groundwater Monitoring

The groundwater monitoring program consists of collecting groundwater samples from eight wells twice a year, once during the dry season (August) and once during the wet season (March). Groundwater monitoring has been conducted twice a year since June 2016. Tables 1 through 3 provide information on groundwater elevations, field parameters, and groundwater analytical results. Groundwater sampling

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during the March 2020 wet season was limited to readily accessible locations due to the outbreak of COVID-19. Wood was unable to obtain permission to access monitoring wells located inside the building due to the possibility of exposure and spread of the disease to workers. As a result, four monitoring wells were not sampled during the wet season: KMW-02, KMW-03, KMW-07, and KMW-08.

2.1 Water Level Measurements and Hydrogeology

The groundwater monitoring program includes measuring water levels in each of the eight monitoring wells. The reference points for determining water level elevations are the tops of the polyvinyl chloride well casings, which have been surveyed relative to mean sea level (North American Vertical Datum of 1988 [NAVD88]). To reduce variation in groundwater level measurements, static water levels for all wells are measured on the same day and before the wells are purged and sampled. Groundwater levels were measured to the nearest 0.01 foot using an electronic water level meter. Groundwater measurements from August 20, 2019, and March 11, 2020, are presented in Table 1.

Groundwater elevation contours for water level measurements collected in August 2019 and March 2020 are presented on Figures 2 and 3, respectively. Water level measurements collected in August 2019 and March 2020 indicate that groundwater generally flows to the west-southwest, in agreement with measurements from previous years (Wood, 2018). Groundwater elevations across the Site vary seasonally, with higher groundwater elevations in the wet season and lower elevations in the dry season. The wet season/dry season range of elevations observed during the 2019–2020 reporting period was approximately 2 feet of elevation difference.

2.2 Groundwater Sampling Methodology

Groundwater samples were collected on August 20, 2019, for the dry season and on March 11, 2020, for the wet season. The groundwater samples were collected in accordance with the procedures outlined in the *Additional Investigation Work Plan* (Amec Foster Wheeler, 2016). Samples were collected using a peristaltic pump with pre-installed dedicated polyethylene tubing using U.S. Environmental Protection Agency (EPA) low-flow sampling techniques. Groundwater parameters were measured at each well during purging using a YSI multi-parameter water quality meter and were recorded on field data sheets (Appendix A). Parameters measured were turbidity, pH, dissolved oxygen, specific conductivity, and oxidation reduction potential (Table 2). Representative unfiltered groundwater samples were collected upon stabilization of the water quality parameters over the course of three consecutive measurements.

Groundwater sample containers were filled directly from the pump tubing and were immediately placed on ice. Samples were transported under chain-of-custody protocols to Friedman & Bruya, Inc., in Seattle, Washington, for laboratory analyses. Each groundwater sample during the reporting period was analyzed for the following:

- Volatile organic compounds (VOCs) by EPA Method 8260C;
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D with selected ion monitoring for some compounds;
- Total metals (arsenic, chromium, copper, lead, mercury, nickel, and zinc) by EPA Method 6020B;
- Total petroleum hydrocarbons (TPH) in the gasoline range (TPH-G) by Ecology method NWTPH Gx; and
- TPH in the diesel and motor oil ranges (TPH-D and TPH-O) by Ecology Method NWTPH-Dx.

Laboratory data packages and data validation memoranda are included in Appendix B.



2.3 Data Validation Results

The groundwater monitoring results for the dry and wet season events were reviewed in accordance with the Quality Assurance Projection Plan (Amec Foster Wheeler, 2016, Attachment B). Documentation provided in the analytical data package was acceptable, data quality was acceptable, and results from these samples may be considered usable with the limitations described in the data validation assessment summary. Data qualifiers added during validation are summarized below:

- August 2019:
 - Wood J-HD: qualified one primary sample for acenaphthylene and TPH-O. Wood J-qualified the detected results because of potential analytical imprecision.
 - Wood J-HS: qualified one primary sample for TPH-G. Wood J-qualified the detected results because of potential analytical bias.
 - Wood UJ-LM: qualified one primary sample for non-detected benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and benzo(a)pyrene analytical results from the unspiked native sample due to potential low analytical bias.
 - Wood EXC: qualified one primary and one duplicate sample for analysis of arsenic, chromium, copper, nickel, and zinc. Multiple results for the same parameter were reported by the laboratory.
- March 2020:
 - Wood J-IS: qualified three primary samples for analysis of chromium, copper, and nickel. Wood determined that the laboratory's J-qualified results should be considered reportable, Wood J-qualified the result to indicated that it should be considered an estimated value.
 - Wood J-HD: qualified two primary samples for zinc and TPH-D. Wood J-qualified the detected results because of potential analytical imprecision.
 - Wood EXC: qualified four primary samples and one duplicate sample for analysis of chromium, copper, nickel, and zinc, and one primary and one duplicate sample for toluene, ethylbenzene, m,p-xylene, and o-xylene. Multiple results for the same parameter were reported by the laboratory.

A list of qualified data is presented in the data validation assessment summary (Appendix B).

2.4 Groundwater Analytical Results

Groundwater results for commonly detected compounds are presented in Table 3, along with the results for detected compounds in sampling events conducted since 2011.

2.4.1 Total Petroleum Hydrocarbons

The highest concentrations of TPH-G have been observed in the groundwater from KMW-04, KMW-06, KMW-09, and KMW-10. During the most recent sampling event conducted in March 2020, the concentrations of TPH-G exceeded the Site screening level (also the MTCA Method A Cleanup Level) of 800 micrograms per liter (µg/L) (where benzene is present), at wells KMW-04 (37,000 µg/L), KMW-06 (3,900 J-HS µg/L), and KMW-09 (940 µg/L).

TPH-D and/or TPH-O have been detected in the groundwater from all of the monitoring wells except for KMW-07 at least once since sampling began in 2011. During the most recent sampling event in March 2020, the concentrations of TPH-D exceeded the Site screening level (also the MTCA Method A Cleanup



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Level) of 500 μ g/L at all four wells samples [KMW-04 (2,300 μ g/L), KMW-06 (26,000 J-HD μ g/L), KMW-09 (13,000 μ g/L), and KMW-10 (4,400 μ g/L)].

2.4.2 Volatile Organic Compounds

Groundwater samples were analyzed for the full list of VOC compounds. Toluene, ethylbenzene, and xylenes compounds were the most frequently detected VOCs, and were predominantly detected in the central area of the Site, where high concentrations of TPH-G also have been detected. These detections are most prevalent in the groundwater from KMW-04, and concentrations appear to have decreased over time, like the TPH-G concentrations in the groundwater from KMW-04. We expect to see VOC concentrations decrease in groundwater at KMW-04 as SVE and air sparging continue to target the western portion of the property.

Other VOC compounds detected in the groundwater during the reporting period are 1,2,4trimethylbenzene, 1,3,5-trimethylbenzene, acetone, ethylbenzene, xylenes, and toluene which were detected in the groundwater collected from KMW-04 and/or KMW-10 during one or both sampling events (August 2019 and/or March 2020).

Chlorinated VOCs were not detected in groundwater samples collected from the monitoring wells during the 2019 and 2020 sampling events, which is consistent with historical results.

2.4.3 Carcinogenic Polycyclic Aromatic Hydrocarbons

Carcinogenic PAHs were detected during the March 2020 groundwater sampling event at KMW-06 and were below the Site screening level for the total Toxicity Equivalency Quotient; no detections were observed during the August 2019 sampling event.

2.4.4 Metals

Groundwater samples were analyzed for total arsenic, chromium, copper, lead, mercury, nickel, and zinc. The concentrations of metals in the groundwater samples were below Site screening levels, except for arsenic. For the 2019 and 2020 sampling events, arsenic was detected at concentrations that exceed the Ecology background level of 5.0 μ g/L at KMW-04 during the August 2019 (17.5 μ g/L) and March 2020 (9.62 μ g/L) sampling events, KMW-06 during March 2020 (6.07 μ g/L), and at KMW-10 during the March 2020 (6.66 μ g/L) sampling event.

3.0 Soil Vapor Extraction/Air Sparge System Operations

3.1 Design, Installation, and Operations

3.1.1 SVE System Design and Installation

SVE and air sparging technologies were selected to address past subsurface releases of hydrocarbons associated with former paint manufacturing activities at the Site. SVE uses a vacuum to extract soil vapors from the subsurface, while air sparging injects air into the saturated zone to help volatilize hydrocarbons to increase the contaminant removal rate. Both methods introduce or help move oxygen into and through the subsurface, which also promotes aerobic biodegradation of residual hydrocarbons.

A series of eight horizontal SVE wells (SVE-01 through SVE-08) were installed beneath the building during redevelopment in 2015. After building construction was completed, a second set of five horizontal SVE wells (SVE-09 through SVE-13) were installed in the parking lot on the western side of the Site. A set of five air sparge wells were installed between the western SVE wells. Figure 4 shows the locations of the SVE horizontal wells at the Site, and Figure 5 shows the locations of the air sparge wells. Applicable permits



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and construction details were included in the 2017 Summary of Investigations and Remedial Actions (Wood, 2018).

The SVE wells installed under the building were routed to a common manifold (referred to as the eastern manifold) located in a walkway between the north warehouse and the south warehouse. The SVE wells installed on the west side of the building were routed to the western manifold, which is located in a fenced-off area near the treatment equipment. Figure 6 shows the current configuration of the SVE and air sparge system.

The SVE blower and air sparge compressor were installed adjacent to the western manifold along with a catalytic thermal oxidizer (CATOX) unit. The CATOX unit is used to treat the extracted soil vapor as well as volatized hydrocarbons sparged from the shallow groundwater recovered by the western SVE wells. The treatment system was permitted with the Puget Sound Clean Air Agency (PSCAA) as detailed in the *2017 Summary of Investigations and Remedial Actions* (Wood, 2018) and as approved by PSCAA per Order of Approval to Construct, Install or Establish No. 11291 dated February 22, 2017.

Figure 7 is a process and instrumentation diagram showing the SVE system and the treatment equipment. As shown, both SVE manifolds route extracted soil vapor to the CATOX treatment unit. The combined SVE and air sparging system is equipped with automatic controls and an auto-dialer that notifies Wood personnel if the CATOX system has shut down or if specific maintenance tasks are required, such as disposal of condensate water that is produced by the SVE wells. The system is equipped with a 250-gallon polyethylene tote to store condensate water produced by the SVE wells, and the tote is monitored by the control system to shut down the SVE blower at high float level to reduce the risk of overfilling. The air sparging pump is configured to shut down immediately upon failure of the SVE system.

3.1.2 SVE and Air Sparge Operations

The SVE system operated continuously between November 2017 and October 2018. In October 2018, a vehicle crashed into the treatment compound area, and the treatment system was promptly shut down until the damaged components could be inspected and repaired. The SVE system was restarted in April 2019 after completion of repairs and operated independently until the air sparge system repairs were completed and the system began operating in late May 2019. Between May 29, 2019. and September 4, 2019, and January 9, 2020, and May 31, 2020, both the air sparge and SVE systems weres operated continuously with the exception of short periods for system maintenance. The system was shut down twice during the annual monitoring period, as described below.

- The system was shut down on September 4, 2019, due to observed system operation inefficiencies (Wood, 2019a). Troubleshooting and maintenance were performed on the system, and the system was restarted on January 8, 2020. Performance monitoring samples observed by field instruments and air samples collected the following day, on Janaury 9, 2020, exceeded permit limits. Laboratory results were received on January 22, 2020, and the system was shut off at that time. Initial startup concentrations are usually higher than during extended operation and the CATOX may have not reached consistent minimum operating temperature at time of sample collection. The system was restarted on February 14, 2020, when performance monitoring samples were collected and confirmed CATOX operation met permit limits.
- The system was shut down on February 19, 2020, due to malfuction of the air sparging system compressor. The compressor was repaired and placed back online on February 21, 2020, when field readings confirmed CATOX performance compliance. Performance monitoring samples collected on March 17, 2020, met permit limits.



3.2 SVE and Air Sparge Performance Evaluation

3.2.1 **CATOX Performance Monitoring and Regulatory Compliance**

Since initial startup of the SVE system in November 2017, performance monitoring vapor samples have been collected monthly from the CATOX influent vapor stream sampling port and at the effluent sample port on the emissions stack. In compliance with PSCAA Registration No. 29932, monthly performance monitoring samples are field-analyzed by a flame ionization detector (FID) calibrated to 100 parts per million hexane. FID readings are reported on field forms presented in Appendix C. Monthly performance monitoring samples are also submitted to Friedman & Bruya, Inc., in Seattle, Washington, for analysis of benzene and TPH as hexane. Monthly FID readings and monthly analytical results for SVE performance monitoring from June 2019 through May 2020 are summarized on Table 5, and analytical reports are provided in Appendix D.

Individual SVE well vapor samples were submitted for laboratory analysis of benzene during SVE startup (November 2017) and during and after air sparging startup (May 2019 and June 2019). Analytical data for individual SVE well samples collected in November 2017 and May and June 2019 are provided in Table 4.

CATOX performance is determined by its mass removal efficiency (MRE) for recovered soil vapor compounds. MRE is calculated from results of FID field readings and analytical laboratory testing of samples collected at the CATOX influent and at the effluent emissions stack. These data are shown in Table 5. MREs generally exceed 95 percent and demonstrate compliant system performance. Despite generally compliant MREs, reported MREs fell below permit requirements during September 2019 and January and February 2020 monthly visits. In all cases, the system was shut down, and extensive system troubleshooting and maintenance were performed as described in Section 3.1.2. Since March 2020, field FID and laboratory analytical results have met permit requirements (Table 5.).

SVE and Air Sparge Optimization and Performance Monitoring 3.2.2

Since 2017, an estimated 3843 pounds of TPH (as hexane equivalent using FID results) have been removed from the subsurface by the SVE system in conjunction with the air-sparge system. Table 5 summarizes the performance data The mass removal rate was calculated from the measured influent concentration and system flow rate during each monthly Site visit, and is based on the total system runtime between Site visits (using CATOX hour meters). Thus, the removal rate is high when the influent concentration is high (such as during air sparge startup) and low when the influent concentrations are low (such as during winter months when groundwater levels are elevated).

Mass removal rates are highest in the summer months when SVE concentrations are high due to lower groundwater levels, which causes the smear zone to be exposed for volatilization and recovery of volatile constituents that are present by the SVE system. We continue to optimize the flow from the SVE wells to maximize the concentration of hydrocarbons in the CATOX influent. The highest-concentration SVE wells have been SVE-03, SVE-05, SVE-10, and SVE-12. After air sparging began in May 2019, concentrations increased in all western wells except for SVE-09. We will continue to monitor SVE well concentrations and target high-concentration areas with SVE and air sparging to improve mass removal rates.

Elevated Site groundwater levels during the winter reduce the vadose zone thickness and volume and SVE influent concentrations. SVE concentrations at all wells fluctuate with the seasonal cycle, which may seasonally reduce SVE mass removal rates. Wet season operations are less efficient due to intermittent alarm conditions and periodic shutdowns associated with increased condensate production at the CATOX knockout pot. We will continue to operate the SVE and air sparge systems during the wet season and will work to optimize mass removal during dry season operations.

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4.0 Upcoming Tasks

The following actions will have been conducted before the end of 2020:

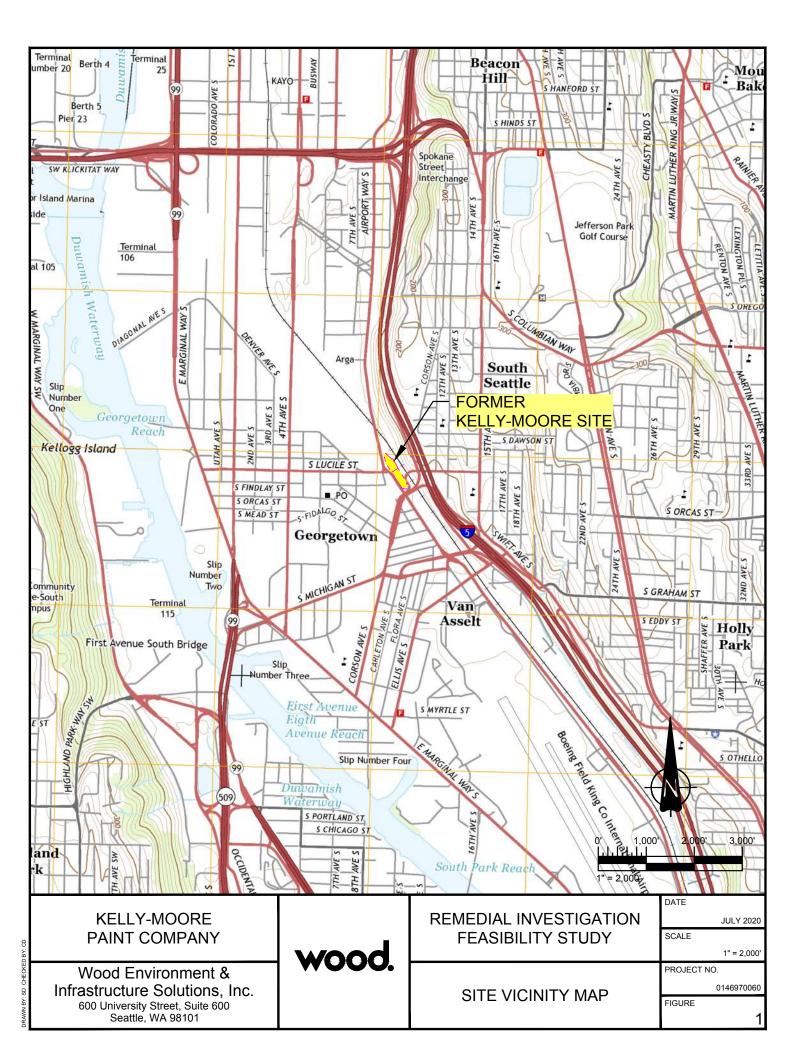
- Groundwater samples were collected for the dry season sampling event on August 19-20, 2020.
- SVE and air sparging system inspections (including performance monitoring sampling) will occur at least monthly. On-site personnel will continue to optimize SVE and air sparging operating conditions in order to maximize mass removal rates and CATOX performance.
- Kelly-Moore and Ecology would like to continue working together to take the necessary steps to eventually obtain "No Further Action" for the Site.

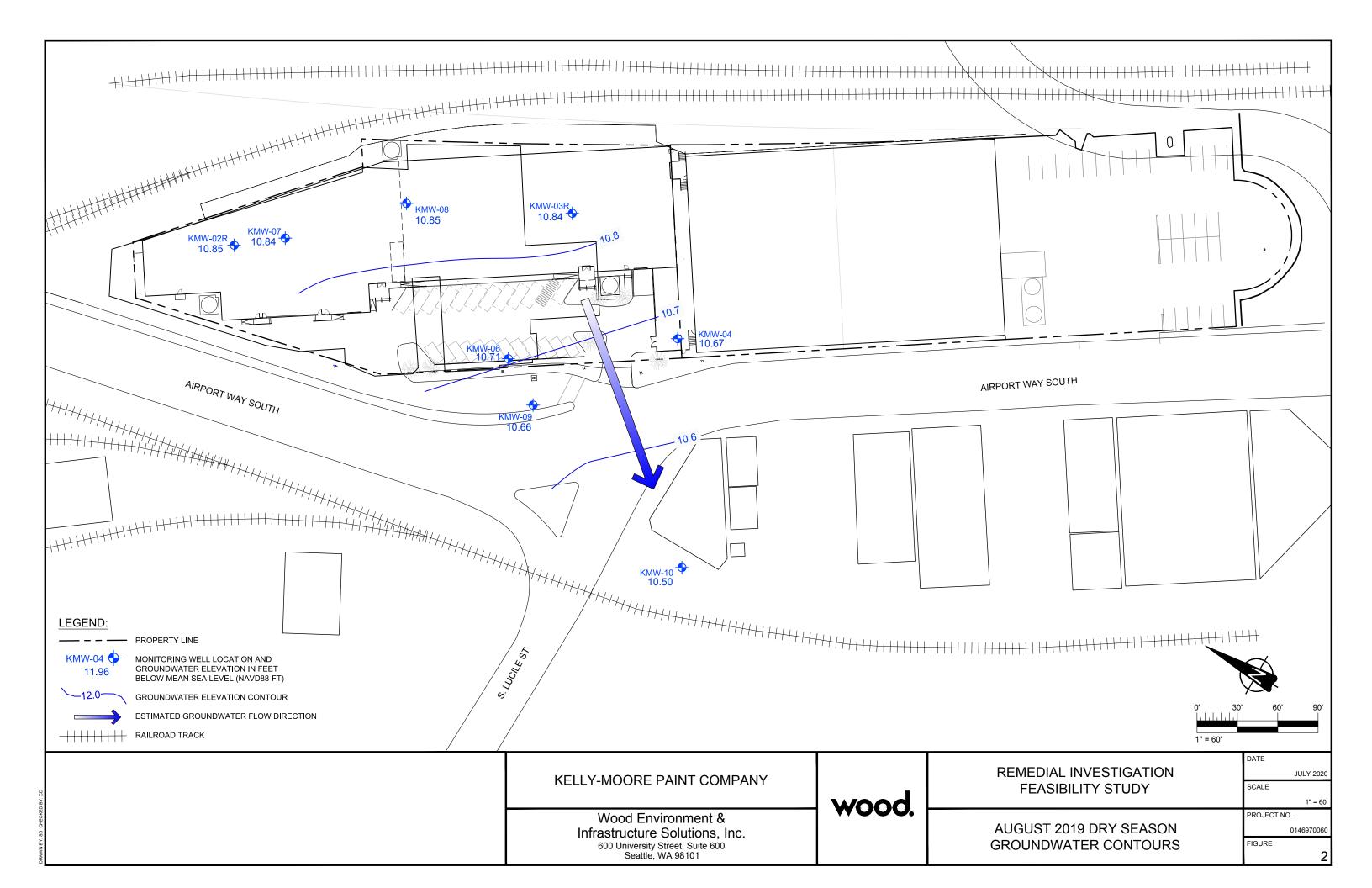
5.0 References

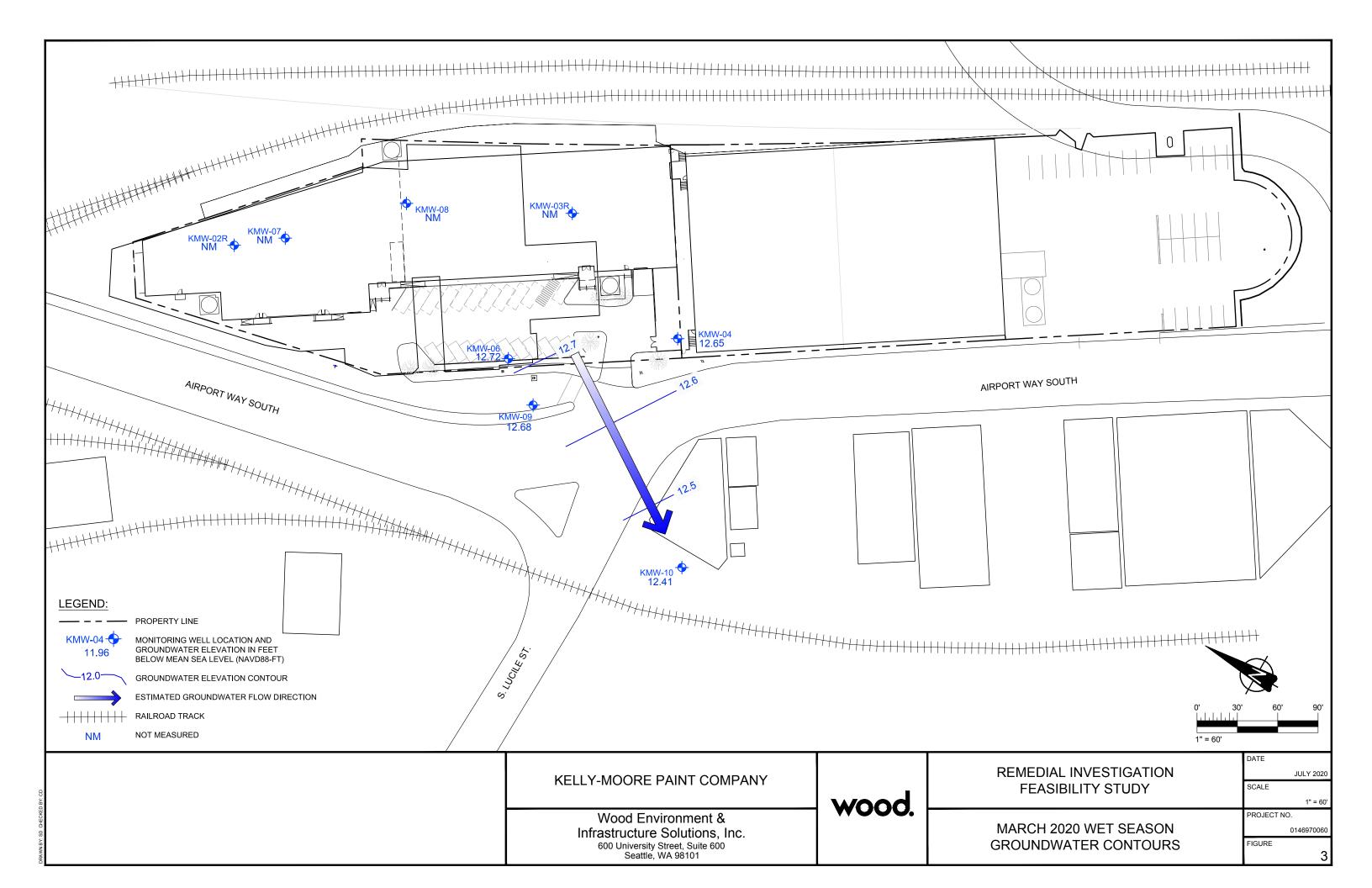
- Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016. Additional Investigation Work Plan, Former Kelly-Moore Manufacturing Facility, 5400–5580 Airport Way South, Seattle, Washington, June.
- Puget Sound Clean Air Agency (PSCAA), 2017. Order of Approval to Construct, Install, or Establish, Kelly Moore Paint Company 5400 Airport Way S, Seattle, Washington, February 22.
- Wood Environment & Infrastructure Solutions, Inc. (Wood), 2018. 2017 Summary of Investigations and Remedial Actions, Former Kelly-Moore Manufacturing Facility, 5400-5580 Airport Way South, Seattle, Washington, June 5.
- Wood, 2019a. Shut-down Notification, Former Kelly-Moore Manufacturing Facility, 5400-5580 Airport Way South, Seattle, Washington, September 27.
- Wood, 2019b. 2018 Summary of Investigations and Remedial Actions, Former Kelly-Moore Manufacturing Facility, 5400-5580 Airport Way South, Seattle, Washington, October 8.

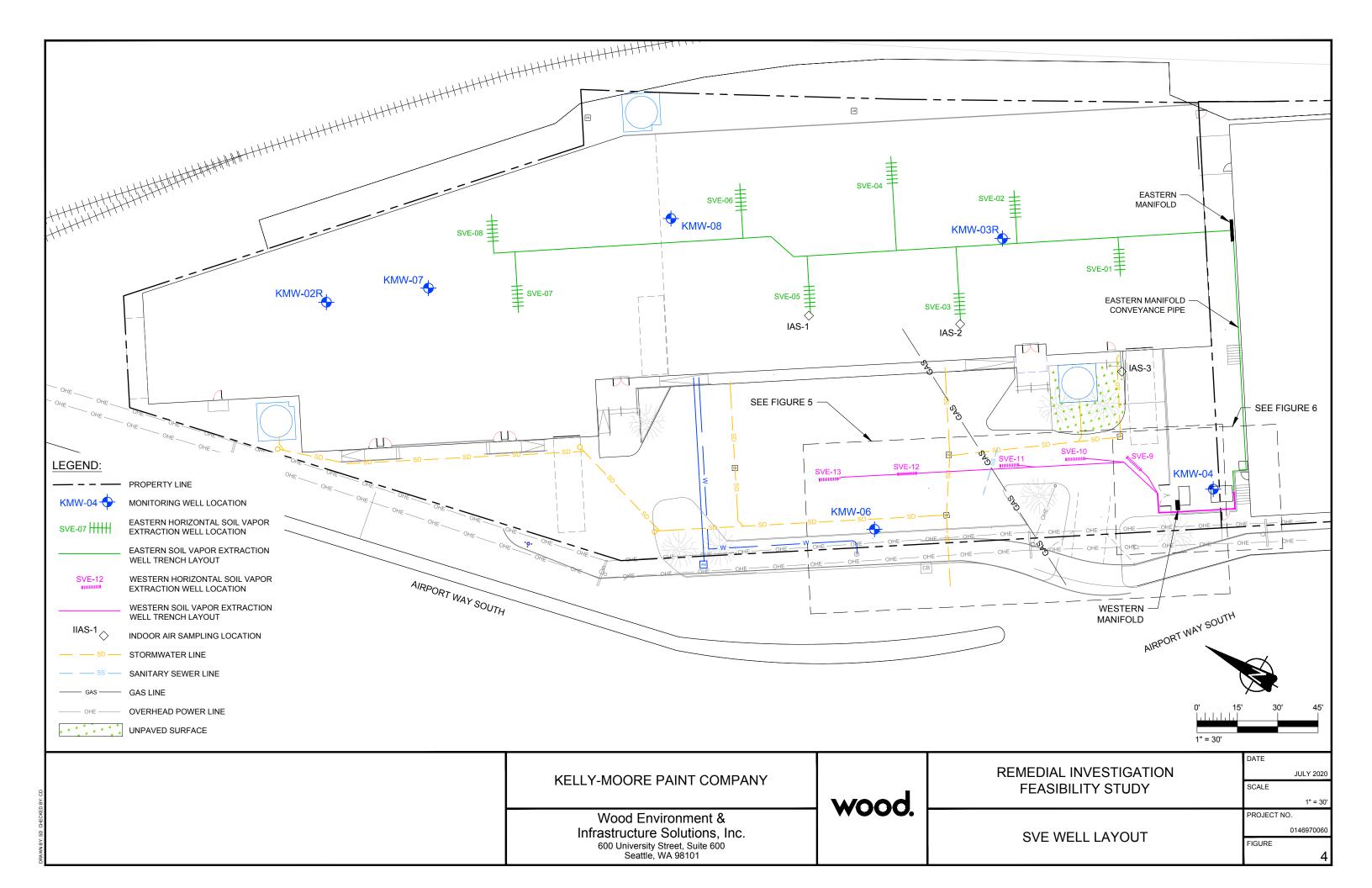


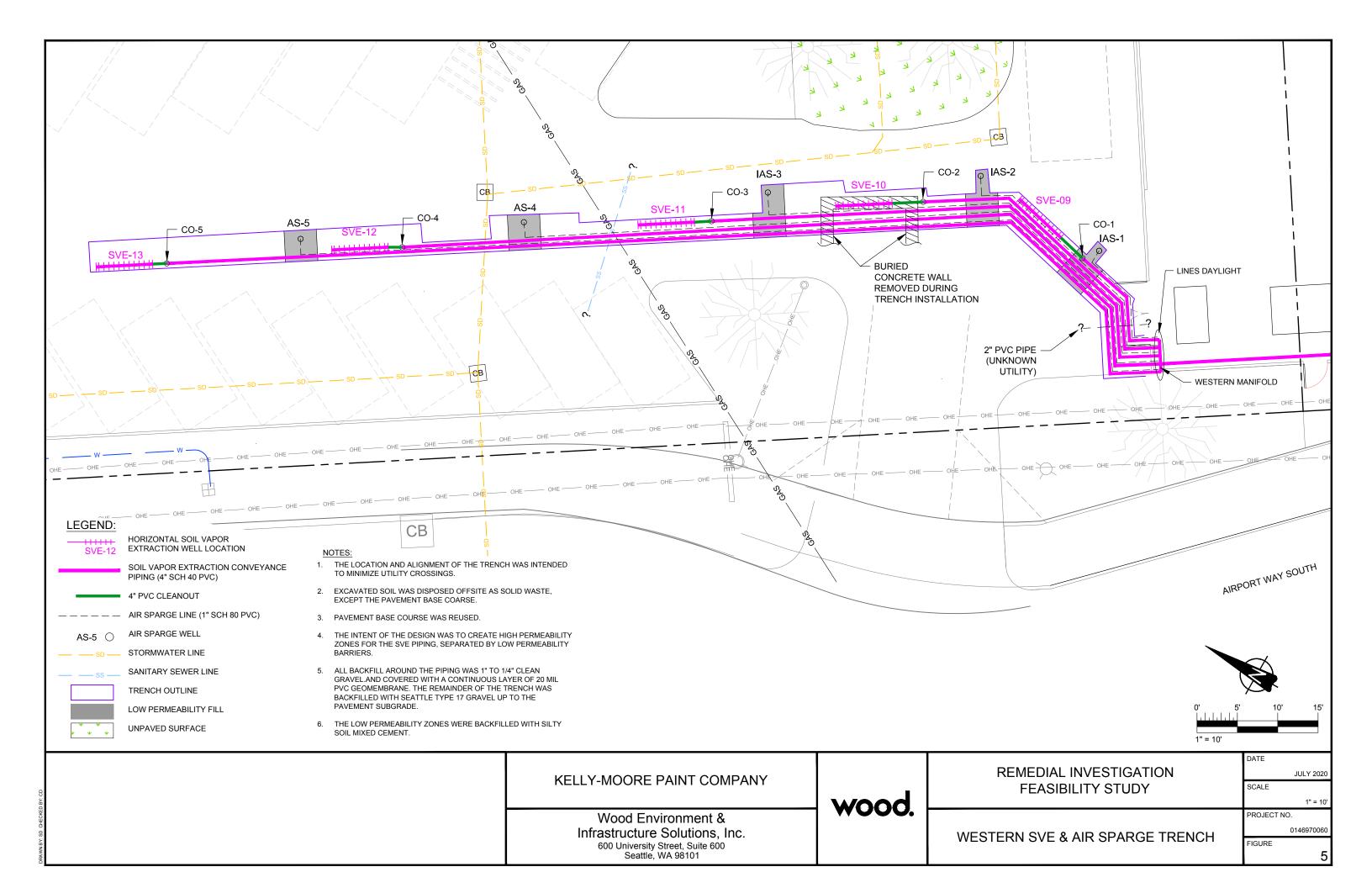


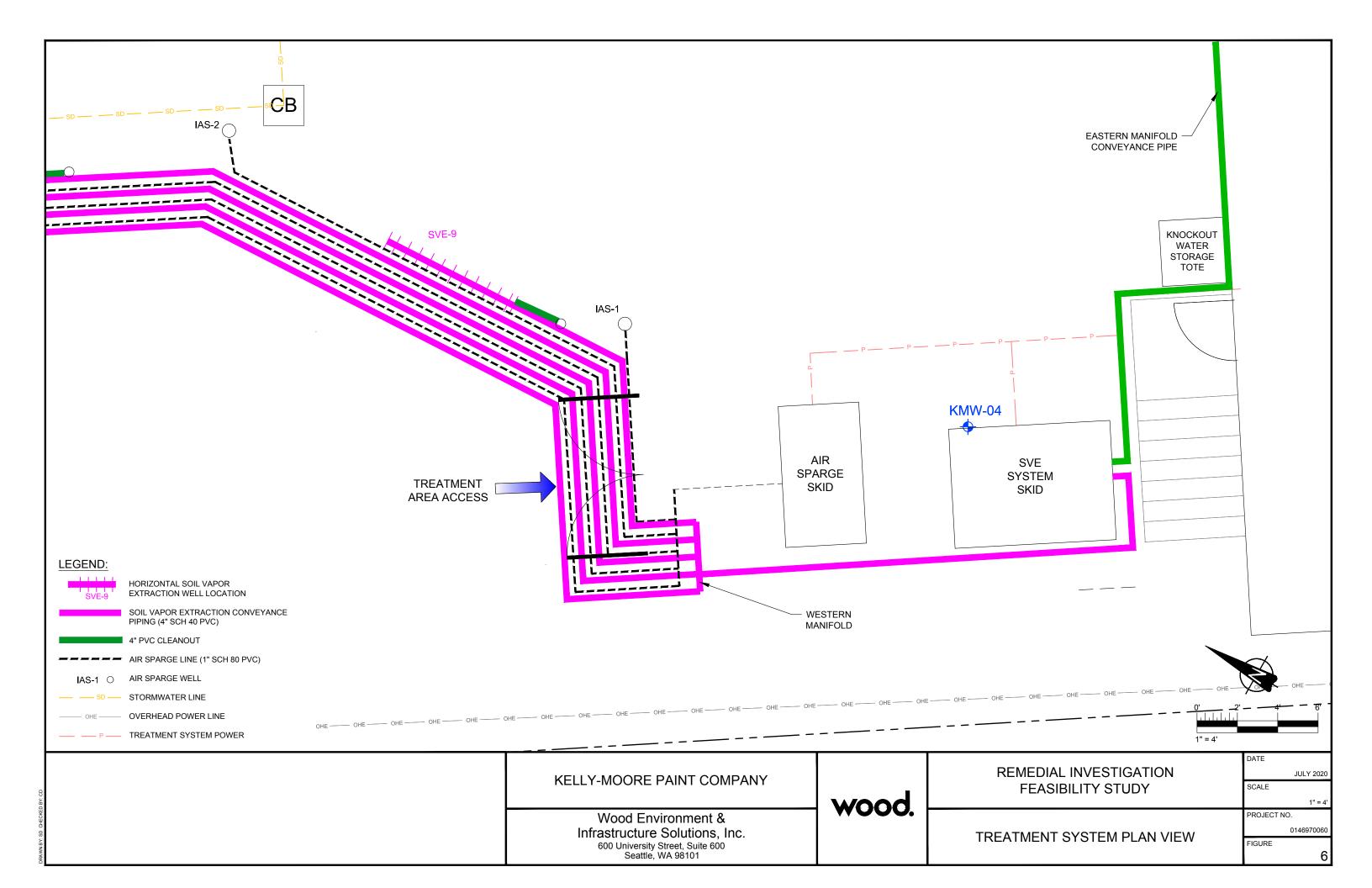


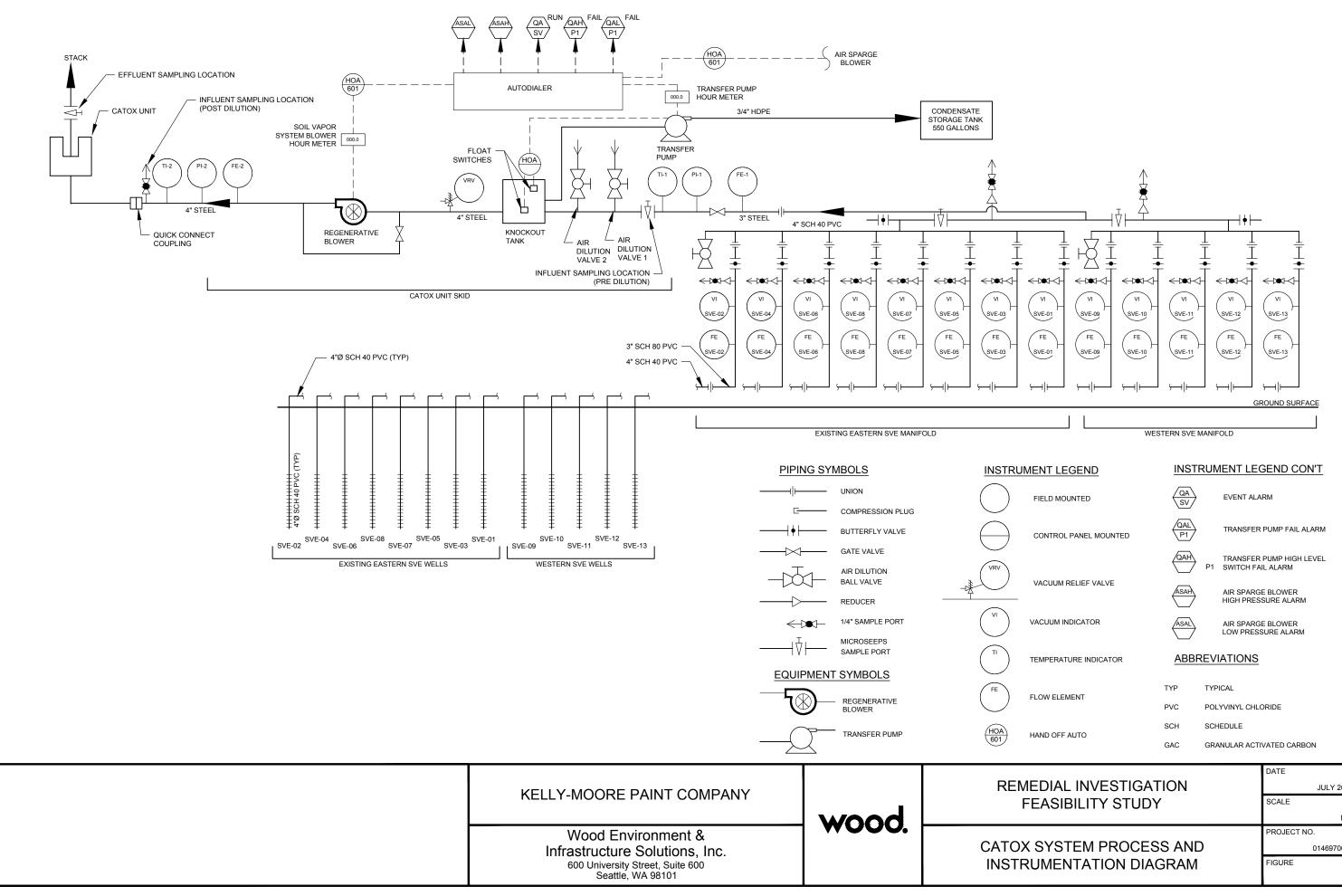












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FIGURE	
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	GROUND SURFACE	
	WESTERN SVE MANIFOLD	
MENT LEGEND	INSTRUMENT LEGEND CON'T	
FIELD MOUNTED	QA SV EVENT ALARM	
CONTROL PANEL MOUNTED	QAL P1 TRANSFER PUMP FAIL ALARM	
	DAH TRANSFER PUMP HIGH LEVEL	
VACUUM RELIEF VALVE	ASAH AIR SPARGE BLOWER HIGH PRESSURE ALARM	
VACUUM INDICATOR	AIR SPARGE BLOWER LOW PRESSURE ALARM	
TEMPERATURE INDICATOR	ABBREVIATIONS	
	TYP TYPICAL	
FLOW ELEMENT	PVC POLYVINYL CHLORIDE	
HAND OFF AUTO	SCH SCHEDULE	
	GAC GRANULAR ACTIVATED CARBON	





TABLE 1: GROUNDWATER ELEVATIONS

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

	WCS No	rth Zone					
Well ID	Northing	Easting	Ground Surface Elevation	TOC Elevation	Date	Depth to Water (feet below TOC)	Groundwater Elevation (feet) ¹
					8/31/2017	9.58	12.05
					1/26/2018	7.56	14.07
KMW-02R ¹	205743.8677	1273010.429	22.01	21.63	8/15/2018	9.96	11.67
KIVIVV-U2R	205745.0077	1275010.429	22.01	21.05	2/7/2019	9.17	12.46
					8/20/2019	10.78	10.85
					3/11/2020	NM	NM
					8/31/2017	9.52	12.02
					1/26/2018	7.87	13.67
KMW-03R ¹	205538.1	1273156.6	21.99	21.54	8/15/2018	9.93	11.61
KMW-03R	205538.1	1273150.0	21.99	21.54	2/7/2019	9.37	12.17
					8/20/2019	10.7	10.84
					3/11/2020	NM	NM
					8/31/2017	6.63	11.93
					1/26/2018	5.35	13.21
KMW-04 ¹	205422.6	1273115.0	18.90	18.56	8/15/2018	7.06	11.50
KIVIVV-04	205423.6	1275115.0	10.90	10.50	2/7/2019	6.60	11.96
					8/20/2019	7.89	10.67
					3/11/2020	5.91	12.65
					8/31/2017	7.87	11.93
					1/26/2018	6.48	13.32
KMW-06 ¹	205525.2	1273039.2	20.16	19.80	8/15/2018	8.29	11.51
KIVIVV-06	205525.2	1273039.2	20.16	19.80	2/7/2019	7.77	12.03
					8/20/2019	9.09	10.71
					3/11/2020	7.08	12.72
					8/31/2017	9.57	12.06
					1/26/2018	7.93	13.70
KMW-07 ¹	205713.7	1272024.0	22.00	21.63	8/15/2018	9.96	11.67
KIVIVV-U/	205/13./	1273034.0	22.00	21.03	2/7/2019	9.21	12.42
					8/20/2019	10.79	10.84
					3/11/2020	NM	NM

TABLE 1: GROUNDWATER ELEVATIONS

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

	WCS No	rth Zone					
Well ID	Northing	Easting	Ground Surface Elevation	TOC Elevation	Date	Depth to Water (feet below TOC)	Groundwater Elevation (feet) ¹
					8/31/2017	9.59	12.06
					1/26/2018	7.72	13.93
KMW-08 ¹	2056495	1273101.3	22.03	21.65	8/15/2018	10.00	11.65
KIVIVV-U8	205648.5	1275101.5	22.05	21.05	2/7/2019	9.31	12.34
					8/20/2019	10.80	10.85
					3/11/2020	NM	NM
					8/31/2017	6.24	11.90
					1/26/2018	4.86	13.28
KMW-09 ²	205508.9	1273025.5	18.60	18.14	8/15/2018	6.64	11.50
KIVIVV-09	205506.9	1275025.5	10.00	10.14	2/7/2019	6.15	11.99
					8/20/2019	7.48	10.66
					3/11/2020	5.46	12.68
					8/31/2017	8.61	11.78
					1/26/2018	7.51	12.88
KMW-10 ²	205336.2	1272955.0	20.84	20.39	8/15/2018	9.01	11.38
KIVIVV-10	203350.2	1212955.0	20.04	20.59	2/7/2019	8.65	11.74
					8/20/2019	9.89	10.50
					3/11/2020	7.98	12.41

Notes:

- 2. Survey completed on December 13, 2016, by Duane Hartman & Associates.
- Coordinate System and Zone: Washington State Plane, North Zone Coordinates. Horizontal Datum: NAD 83(91), North Zone, US feet. Vertical Datum: NAVD88, US feet.

Abbreviations:

NAD = North American Datum NAVD88 = North American Vertical Datum of 1988 TOC = top of casing

WCS = Washington Coordinate System

^{1.} Survey completed on June 30, 2016, by Duane Hartman & Associates.

TABLE 2: GROUNDWATER PARAMETERS

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

			SC	ORP	DO	
Well ID	Date	рН	(ms/cm)	(mv)	(mg/L)	
	8/31/2017	5.89	0.175	142.9	0.21	
	1/26/2018	5.99	0.199	150.9	0.28	
	8/16/2018	5.85	0.173	274	0.55	
KMW-02R	2/8/2019	5.95	0.245	130.1	0.81	
	8/20/2019	5.76	0.211	121	2.97	
	3/11/2020	NM	NM	NM	NM	
	8/31/2017	7.07	0.477	-117.2	0.15	
	1/26/2018	7.27	0.454	-102.2	0.19	
	8/16/2018	7.03	0.378	112	0.47	
KMW-03R	2/8/2019	6.97	0.582	-87	0.51	
	8/20/2019	6.90	0.613	-47	2.19	
	3/11/2020	NM	NM	NM	NM	
	8/31/2017	6.31	0.485	-92.0	0.07	
	1/25/2018	6.40	0.276	-40.0	0.58	
	8/16/2018	6.09	0.326	99.0	0.63	
KMW-04	2/7/2019	6.22	0.341	-74.0	0.62	
	8/20/2019	6.26	0.352	-52.0	2.38	
	3/11/2020	6.15	0.293	-51.0	0.42	
	8/31/2017	6.35	0.453	-90.3	0.10	
	1/24/2018	6.56	0.314	-91.4	0.24	
	8/16/2018	6.33	0.421	-39	0.37	
KMW-06	2/7/2019	6.18	0.635	-32	0.65	
	8/19/2019	6.32	0.49	-66	2.38	
	3/11/2020	5.7	0.9	27.1	2.45	
	8/31/2017	6.02	0.283	56.2	0.15	
	1/26/2018	6.32	0.280	56.1	0.32	
	8/16/2018	6.02	0.211	268	0.6	
KMW-07	2/8/2019	6.23	0.318	51.1	0.52	
	8/20/2019	5.96	0.249	106	2.93	
	3/11/2020	NM	NM	NM	NM	
	8/31/2017	6.15	0.177	1.90	0.10	
	1/26/2018	5.98	0.526	32.9	0.50	
	8/16/2018	5.95	0.211	248	0.58	
KMW-08	2/8/2019	6.05	0.25	91.4	0.74	
	8/20/2019	5.58	2.508	133.7	2.26	
	3/11/2020	NM	NM	NM	NM	
	8/31/2017	6.32	0.415	-95.1	0.21	
	1/24/2018	6.56	0.396	-79.5	0.40	
	8/16/2018	6.35	0.387	-24	0.47	
KMW-09	2/7/2019	6.42	0.4	-69	0.57	
	8/20/2019	6.4	0.314	-47	3.05	
	3/11/2020	6.16	0.512	-55.6	0.35	

TABLE 2: GROUNDWATER PARAMETERS

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

			SC	ORP	DO
Well ID	Date	рН	(ms/cm)	(mv)	(mg/L)
	8/31/2017	6.21	0.567	-86.3	0.15
	1/25/2018	6.46	0.656	-69.4	0.28
KNANA 10	8/16/2018	6.25	0.416	-15	0.46
KMW-10	2/7/2019	6.53	0.43	-82	0.49
	8/19/2019	6.26	0.612	-67	3.26
	3/11/2020	6.39	0.542	-63	0.37

Abbreviations

DO = disolved oxygen mg/L = milligrams per liter ms/cm = millisiemens per centimeter mv = millivolts

NM = not measured

ORP = oxidation reduction potential

SC = specific conductivity

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

			KMW-01						I	KMW-02/02I	R ⁴				
Analyte ^{1,2}	Preliminary Screening Level ³	3/28/2011	8/4/2011	6/7/2013	3/28/2011	8/4/2011	6/7/2013	6/30/2016	11/10/2016	9/1/2017	1/26/2018	8/16/2018	2/8/2019	8/20/2019	3/11/2020
Total Metals (μg/L)															
Arsenic	5	3.3 U	3.3 U		3.3 U	3.3 U		3.3 U	3.3 U	3.3 U	3.3 U	1.0 U	1.0 U	1.0 U	
Chromium	50	11 U			11 U			11 U	11 U	11 U	11 U	1.0 U	1.0 U	1.0 U	
Copper	640		11 U			11 U						5.0 U	5.0 U	5.0 U	
Lead	15	1.1 U	1.1 U		1.1 U	1.1 U		1.1 U	1.1 U	1.1 U	1.1 U	1.0 U	1.0 U	1.0 U	
Mercury	2							0.5 U	0.50 U	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	
Nickel	100											1.82	2.15	2.13	
Zinc	4800											5.0 U	5.0 U	6.47	
Carcinogenic Polycyclic Aromatic Hydrocar	rbons (µg/L)			1			1	1				1			
Benzo(a)anthracene		0.0098 U	0.0095 U		0.0098 U	0.0096 U		0.0095 U	0.0094 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(a)pyrene	0.023	0.0098 U	0.0095 U		0.0098 U	0.0096 U		0.0095 U	0.0094 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(b)fluoranthene		0.0098 U	0.0095 U		0.0098 U	0.0096 U		0.0095 U	0.0094 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(j,k)fluoranthene		0.0098 U	0.0095 U		0.0098 U	0.0096 U		0.0095 U	0.0094 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Chrysene		0.0098 U	0.0095 U		0.0098 U	0.0096 U		0.0095 U	0.0094 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Dibenz(a,h)anthracene		0.0098 U	0.0095 U		0.0098 U	0.0096 U		0.0095 U	0.0094 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Indeno(1,2,3-cd)pyrene		0.0098 U	0.0095 U		0.0098 U	0.0096 U		0.0095 U	0.0094 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Total cPAHs	0.2														
Polychlorinated Biphenyls (µg/L)															
Aroclor 1016								0.047 U							
Aroclor 1221								0.047 U							
Aroclor 1232								0.047 U							
Aroclor 1242								0.047 U							
Aroclor 1248								0.047 U							
Aroclor 1254								0.047 U							
Aroclor 1260	0.04							0.047 U							
Total Petroleum Hydrocarbons (µg/L)															
Gasoline Range Organics	800	100 U	100 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	
Diesel Range Organics	500							260	260 U	0.27 U	260 U	50 U	60 U	50 U	
Lube Oil	500							410 U	410 U	0.43 U	410 U	250 U	300 U	250 U	
Volatile Organic Compounds (µg/L)															
1,2,4-Trimethylbenzene	80	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
1,3,5-Trimethylbenzene	80	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Acetone	7200	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	12 U	5.0 U	5.0 U	5.0 U	50 U	50 U	50 U	
Benzene	0.8	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.35 U	0.35 U	0.35 U	
Ethylbenzene	700	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
m,p-Xylene	1600	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	2.0 U	2.0 U	2.0 U	
Naphthalene	160	1.0 U	1.0 U	1.4 U	1.0 U	1.0 U	1.4 U	1.0 U	1.3 U	1.0 U	1.0 U	0.06 U	0.4 U	1.0 U	
o-Xylene	1600	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Toluene	640	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Trichloroethene	0.54	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Vinyl Chloride	0.03	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	

Notes:

1. Data qualifiers are as follows:

U = The analyte was not detected at the reporting limit indicated.

J = The value is an estimate.

- UJ = The analyte was not detected at the estimated reporting limit indicated.
- IS= Internal standard recoverty is outside of limits.
- HS= Surrogate recovery is outsided of laboratory-specified limits.

HD= Imprecision between duplicate results

x = The sample chromatigraphic pattern does not resemble the fuel standard used for quantification.

- 2. Bold values indicate detections.
- Preliminary Screening Level as defined on Table 2 Selection of Preliminary Groundwater Screening Levels (Ecology, 2019).
- 4. KMW-02 was abandoned by backfilling with bentonite on February 4, 2015, and was replaced June 28, 2016.
- KMW-03 was destroyed during building demolition on June 3, 2015, and was replaced June 27, 2016.
- 6. Well not sampled due to Covid-19 site access restrictions.

Abbreviations:

-- = not analyzed

 μ g/L = micrograms per liter

cPAHS = carcinogenic polycyclic aromatic hydrocarbons

(D) = duplicate sample collected

mg/L - milligram per liter

R = replaced

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

									KMW-03/03	3R ⁵						
-			3/28/2011													
Analyte ^{1,2}	Preliminary Screening Level ³	3/28/2011	(D)	8/4/2011	4/4/2013	6/7/2013	3/10/2015	7/1/2016	11/10/2016	11/10/2016 (D)	9/1/2017	1/26/2018	8/16/2018	2/8/2019	8/20/2019	3/11/2020
Total Metals (μg/L)																
Arsenic	5	3.3 U	3.3 U	3.3 U				3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	1.0 U	1.0 U	1.0 U	
Chromium	50	11 U	11 U					11 U	11 U	11 U	11 U	11 U	1.0 U	1.47	1.0 U	
Copper	640			11 U									5.0 U	5.0 U	5.0 U	
Lead	15	1.1 U	1.1 U	1.1 U				1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.0 U	1.0 U	1.0 U	
Mercury	2							0.5 U	0.50 U	0.50 U	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	
Nickel	100												1.46	1.67	2.51	
Zinc	4800												5.0 U	5.0 U	5.0 U	
Carcinogenic Polycyclic Aromatic Hydrocarb	oons (µg/L)															
Benzo(a)anthracene		0.0096 U	0.0095 U	0.0095 U				0.018	0.0095 U	0.0095 U	0.0098 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(a)pyrene	0.023	0.0096 U	0.0095 U	0.0095 U				0.011	0.0095 U	0.0095 U	0.0098 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(b)fluoranthene		0.0096 U	0.0095 U	0.0095 U				0.011	0.0095 U	0.0095 U	0.0098 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(j,k)fluoranthene		0.0096 U	0.0095 U	0.0095 U				0.0095 U	0.0095 U	0.0095 U	0.0098 U	0.011 U	0.06 U	0.04 U	0.04 U	
Chrysene		0.0096 U	0.0095 U	0.0095 U				0.012	0.0095 U	0.0095 U	0.0098 U	0.011 U	0.06 U	0.04 U	0.04 U	
Dibenz(a,h)anthracene		0.0096 U	0.0095 U	0.0095 U				0.0095 U	0.0095 U	0.0095 U	0.0098 U	0.011 U	0.06 U	0.04 U	0.04 U	
Indeno(1,2,3-cd)pyrene		0.0096 U	0.0095 U	0.0095 U				0.011	0.0095 U	0.0095 U	0.0098 U	0.011 U	0.06 U	0.04 U	0.04 U	
Total cPAHs	0.2							0.016								
Polychlorinated Biphenyls (µg/L)																
Aroclor 1016								0.047 U								
Aroclor 1221								0.047 U								
Aroclor 1232								0.047 U								
Aroclor 1242								0.047 U								
Aroclor 1248								0.047 U								
Aroclor 1254								0.047 U								
Aroclor 1260	0.04							0.047 U								
Total Petroleum Hydrocarbons (µg/L)																
Gasoline Range Organics	800	7,700	7,000	6,100	1,800	1,100	1,100	300	130	170	270	150	290	140	170	
Diesel Range Organics	500							660 J	310 U	280 U	330	510	350	1700	2800 x	
Lube Oil	500							410 U	410 U	410 U	430 U	410 U	250 U	300 U	250 U	
Volatile Organic Compounds (µg/L)																
1,2,4-Trimethylbenzene	80				1.0 U	0.20 U		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
1,3,5-Trimethylbenzene	80				1.0 U	0.20 U		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Acetone	7200				25 U	5.0 U		12 U	7.9	6.5	5.0 U	5.0 U	50 U	50 U	50 U	
Benzene	0.8	8.1	8.4	4.0 U	1.0 U	0.41		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.35 U	0.35 U	0.35 U	
Ethylbenzene	700	3,100	2,700	2,400	170	27		1.4	0.33	0.34	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
m,p-Xylene	1600	18	18	7.1	2.0 U	0.4 U		2.1	1.0	0.97	0.40 U	0.40 U	2.0 U	2.0 U	2.0 U	
Naphthalene	160				19	9.8		1.0 U	1.3 U	1.3 U	1.0 U	1.0 U	0.078	0.4 U	1.0 U	
o-Xylene	1600	4.0 U	4.0 U	4.0 U	1.0 U	0.20 U		0.35	0.35	0.37	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Toluene	640	4.0 U	4.0 U	4.0 U	5.0 U	1.0 U		1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Trichloroethene	0.54				1.0 U	0.20 U		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Vinyl Chloride	0.03				1.0 U	0.20 U		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	

Notes:

1. Data qualifiers are as follows:

U = The analyte was not detected at the reporting limit indicated.

J = The value is an estimate.

UJ = The analyte was not detected at the estimated reporting limit indicated.

IS= Internal standard recoverty is outside of limits.

HS= Surrogate recovery is outsided of laboratory-specified limits.

HD= Imprecision between duplicate results

x = The sample chromatigraphic pattern does not resemble the fuel standard used for quantification.

2. Bold values indicate detections.

 Preliminary Screening Level as defined on Table 2 Selection of Preliminary Groundwater Screening Levels (Ecology, 2019).

4. KMW-02 was abandoned by backfilling with bentonite on February 4, 2015, and was replaced June 28, 2016.

- KMW-03 was destroyed during building demolition on June 3, 2015, and was replaced June 27, 2016.
- 6. Well not sampled due to Covid-19 site access restrictions.

Abbreviations:

-- = not analyzed µg/L = micrograms per liter

cPAHS = carcinogenic polycyclic aromatic

hydrocarbons

(D) = duplicate sample collected mg/L - milligram per liter

R = replaced

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

	КМЖ-04												KMW-05					
Analyte ^{1,2}	Preliminary Screening Level ³	3/28/2011	8/4/2011	8/4/2011 (D)	6/7/2013	3/10/2015	6/30/2016	6/30/2016 (D)	11/11/2016	8/31/2017	1/25/2018	8/16/2018	2/7/2019	8/20/2019	3/11/2020	3/28/2011	8/4/2011	6/7/201
Fotal Metals (µg/L)	Freininary Screening Lever	3/20/2011	0/4/2011	0/4/2011(D)	0/1/2013	3/10/2013	0/30/2010	0/30/2010 (D)	11/11/2010	0/31/2017	1/23/2010	0/10/2010	2/1/2019	0/20/2019	3/11/2020	J/20/2011	0/4/2011	0/1/201
Arsenic	5	12	12	10			12	12	20	14	7.6	14.5	17.4	17.5	9.62	3.3 U	3.3 U	
Chromium	50	11 U					11 U	11 U	11 U	11 U	11 U	1.0 UJ	1.58	10 U	10 U	11 U		
Copper	640		11 U	11 U								5.0 UJ	24.7	50 U	58.1		11 U	
Lead	15	1.1 U	1.1 U	1.1 U			1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.0 U	1.51	2.23	1.45	1.1 U	1.1 U	
Mercury	2						0.5 U	0.5 U	0.50 U	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	1 U			
Nickel	100											2.43 J	1.98	10 U	1.21 J-IS			
Zinc	4800											5.0 UJ	5.0 U	50 U	50 U			
Carcinogenic Polycyclic Aromatic Hydrocarb	ons (µa/L)																1	
Benzo(a)anthracene	· · · · · · · · · · · · · · · · · · ·	0.012 U	0.0095 U	0.0095 U			0.011	0.014	0.0094 U	0.0096 U	0.010 U	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	
Benzo(a)pyrene	0.023	0.012 U	0.0095 U	0.0095 U			0.0095 UJ	0.015 J	0.0094 U	0.0096 U	0.010 U	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	
Benzo(b)fluoranthene		0.012 U	0.0095 U	0.0095 U			0.0095 UJ	0.022 J	0.0094 U	0.0120	0.010 U	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	
Benzo(j,k)fluoranthene		0.012 U	0.0095 U	0.0095 U			0.0095 U	0.0095 U	0.0094 U	0.0096 U	0.010 U	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	
Chrysene		0.012 U	0.0095 U	0.0095 U			0.0095 U	0.0095 U	0.0094 U	0.0100	0.010 U	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	
Dibenz(a,h)anthracene		0.012 U	0.0095 U	0.0095 U			0.0095 U	0.0095 U	0.0094 U	0.0096 U	0.010 U	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	
Indeno(1,2,3-cd)pyrene		0.012 U	0.0095 U	0.0095 U			0.0095 UJ	0.016 J	0.0094 U	0.0096 U	0.010 U	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	
Total cPAHs	0.2						0.008	0.021		0.008								
olychlorinated Biphenyls (µg/L)																		
Aroclor 1016							0.048 U	0.047 U										
Aroclor 1221							0.048 U	0.047 U										
Aroclor 1232							0.048 U	0.047 U										
Aroclor 1242							0.048 U	0.047 U										
Aroclor 1248							0.048 U	0.047 U										
Aroclor 1254							0.048 U	0.047 U										
Aroclor 1260	0.04						0.048 U	0.047 U										
Total Petroleum Hydrocarbons (µg/L)																		
Gasoline Range Organics	800	75,000	55,000	50,000	48,000	27,000	27,000	27,000	63,000	8,000	9,000	33,000	31,000	82,000	37,000	100 U	100 U	100 U
Diesel Range Organics	500						3,000 J	2,700 J	6,400 U	1,600	1,700	2,000	2,600	4300 x	2,300			
Lube Oil	500						510	870	410 U	440 U	410 U	250 U	300 U	250 U	250 U			
/olatile Organic Compounds (µg/L)																		
1,2,4-Trimethylbenzene	80				77		44 J	65 J	160	97	110	54	67	170	130			0.20 U
1,3,5-Trimethylbenzene	80				20 U		20 U	20	52	30	50 U	17	33	100 U	61			0.20 U
Acetone	7200				500 U		1,200 U	1,200 U	1,000 U	500 U	1300 U	50 U	500 U	5000 U	150			5.0 U
Benzene	0.8	10	13	13	20 U		20 U	20 U	20 U	20 U	50 U	0.35 U	3.5 U	35 U	0.35 U	1.0 U	1.0 U	0.20 U
Ethylbenzene	700	5,700	3,700	3,400	3,400		3,700	4,300	5,200	4,300	4,700	2,600	2,800	6,700	3,000	1.0 U	1.0 U	0.20 U
m,p-Xylene	1600	12,000	8,500	7,700	6,800		7,100	7,900	12,000	7,800	12,000	6,400	6,100	19,000	7,500	1.0 U	1.0 U	0.4 U
Naphthalene	160				140 U		100 U	100 U	100 U	100 U	250 U	5.1	3.3	100 U	5.5			1.4 U
o-Xylene	1600	3,400	2,100	1,900	2,200		1,700	1,700	3,600	1,900	3,600	1,500	1,300	4,600	1,400	1.0 U	1.0 U	0.20 U
Toluene	640	7,400	5,800	5,500	3,800		1,400	1,300	5,300	980	5,500	610	190	1,500	380	1.0 U	1.0 U	1 U
Trichloroethene	0.54				20 U		20 U	20 U	20 U	20 U	50 U	1.0 U	10 U	100 U	1 U			0.20 U
Vinvl Chloride	0.03				20 U		2.0 U	2.0 U	2.0 U	20 U	50 U	0.20 U	2.0 U	20 U	0.2 U			0.20 U

Notes:

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- 2. Bold values indicate detections.
- 3. Preliminary Screening Level as defined on Table 2 Selection of Preliminary Groundwater Screening Levels (Ecology, 2019).
- 4. KMW-02 was abandoned by backfilling with bentonite on February 4, 2015, and was replaced June 28, 2016.
- KMW-03 was destroyed during building demolition on June 3, 2015, and was replaced June 27, 2016.
- 6. Well not sampled due to Covid-19 site access restrictions.

- Abbreviations:
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- µg/L = micrograms per liter cPAHS = carcinogenic polycyclic aromatic
 - hydrocarbons
- (D) = duplicate sample collected mg/L - milligram per liter

R = replaced

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

					КМ	N-06							КМ	N-07			
Analyte ^{1,2}	Preliminary Screening Level ³	6/30/2016	11/11/2016	8/31/2017	1/24/2018	8/16/2018	2/7/2019	8/19/2019	3/11/2020	7/1/2016	11/10/2016	9/1/2017	1/26/2018	8/16/2018	2/8/2019	8/20/2019	3/11/2020 ⁶
Total Metals (µg/L)																	
Arsenic	5	3.5	3.4	3.3 U	3.3 U	4.83	3.04	10 U	6.07	3.3 U	3.3 U	3.3 U	3.3 U	1.0 U	1.0 U	1.0 U	
Chromium	50	11 U	11 U	11 U	11 U	2.48 J	2	10 U	3.78 J-IS	11 U	11 U	11 U	11 U	1.0 U	1.0 U	1.0 U	
Copper	640					11.9 J	19.4	50 U	149					5.0 U	5.0 U	5.0 U	
Lead	15	3.7	1.1	2.7	7.3	5.61	2.04	2.57	4.7	1.1 U	1.1 U	1.1 U	1.1 U	1.0 U	1.0 U	1.0 U	
Mercury	2	0.5 U	0.50 U	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	1 U	0.5 U	0.50 U	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	
Nickel	100					1.38 J	7.79	10 U	26.8					1.0 U	1.36	1.22	
Zinc	4800					5.72 J	135	50 U	392 J-HD					5.0 U	5.0 U	5.0 U	
Carcinogenic Polycyclic Aromatic Hydrocarb	ons (µg/L)																
Benzo(a)anthracene		0.047	0.013	0.041	0.055	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(a)pyrene	0.023	0.038	0.022	0.033	0.071	0.06 U	0.04 U	0.04 U	0.075	0.0095 U	0.0095 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(b)fluoranthene		0.047	0.021	0.034	0.082	0.06 U	0.04 U	0.04 U	0.084	0.0095 U	0.0095 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Benzo(j,k)fluoranthene		0.018	0.031	0.018	0.034	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Chrysene		0.035	0.028	0.032	0.062	0.06 U	0.04 U	0.04 U	0.051	0.0095 U	0.0095 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Dibenz(a,h)anthracene		0.0095 U	0.0095 U	0.0095 U	0.0110	0.06 U	0.04 U	0.04 U	0.04 U	0.0095 U	0.0095 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Indeno(1,2,3-cd)pyrene		0.028	0.023	0.023	0.054	0.06 U	0.04 U	0.04 U	0.074	0.0095 U	0.0095 U	0.0099 U	0.011 U	0.06 U	0.04 U	0.04 U	
Total cPAHs	0.2	0.053	0.032	0.045	0.095				0.103								
Polychlorinated Biphenyls (µg/L)																	
Aroclor 1016		0.047 U								0.047 U							
Aroclor 1221		0.047 U								0.047 U							
Aroclor 1232		0.047 U								0.047 U							
Aroclor 1242		0.047 U								0.047 U							
Aroclor 1248		0.047 U								0.047 U							
Aroclor 1254		0.047 U								0.047 U							
Aroclor 1260	0.04	0.047 U								0.047 U							
Total Petroleum Hydrocarbons (µg/L)																	
Gasoline Range Organics	800	2,700	850	1,600	1,300	4,000	2,200	3,200	3900 J-HS	500 U	100 U	100 U	100 U	100 U	100 U	100 U	
Diesel Range Organics	500	5,400 J	3,500	4,400	4,200	8,600	19,000	14000 x	26000 J-HD	260 U	260 U	280 U	260 U	50 U	60 U	50 U	
Lube Oil	500	1,500 J	1,200	1,600	600	680	790	820 x	1500	410 U	420 U	450 U	410 U	250 U	300 U	250 U	
Volatile Organic Compounds (µg/L)																	
1,2,4-Trimethylbenzene	80	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
1,3,5-Trimethylbenzene	80	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Acetone	7200	12 U	5.0 U	5.0 U	5.0 U	50 U	50 U	50 U	50 U	12 U	6.5	5.0 U	5.0 U	50 U	50.0 U	50 U	
Benzene	0.8	0.20 U	0.20 U	0.20 U	0.20 U	0.35 U	0.35 U	0.35 U	0.35 U	0.20 U	0.20 U	0.20 U	0.20 U	0.35 U	0.35 U	0.35 U	
Ethylbenzene	700	0.38	0.25	0.27	0.20 U	1.0 U	1.0 U	1.0 U	1 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
m,p-Xylene	1600	1.4	0.92	1.6	0.42	2.0 U	2.0 U	2.0 U	2 U	0.4 U	0.44	0.40 U	0.40 U	2.0 U	2.0 U	2.0 U	
Naphthalene	160	1.0 U	1.3 U	1.0 U	1.0 U	0.16	0.4 U	0.4 U	1 U	1.0 U	1.3 U	1.0 U	1.0 U	0.06 U	0.4 U	0.4 U	
o-Xylene	1600	0.64	0.49	0.47	0.20 U	1.0 U	1.0 U	1.0 U	1 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Toluene	640	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Trichloroethene	0.54	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	
Vinyl Chloride	0.03	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.2 U	0.2 U	0.2 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.2 U	0.2 U	

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x = The sample chromatigraphic pattern does not resemble the fuel standard used for quantification.

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Groundwater Screening Levels (Ecology, 2019).

 KMW-02 was abandoned by backfilling with bentonite on February 4, 2015, and was replaced June 28, 2016.

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6. Well not sampled due to Covid-19 site access restrictions.

Abbreviations:

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μg/L = micrograms per liter cPAHS = carcinogenic polycyclic aromatic

hydrocarbons

(D) = duplicate sample collected mg/L - milligram per liter

R = replaced

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

					км	W-08							KMW-09			
Analyte ^{1,2}	Preliminary Screening Level ³	7/1/2016	11/10/2016	9/1/2017	1/26/2019	8/16/2019	2/8/2019	9/20/2010	3/11/2020 ⁶	11/11/2016	9/21/2017	1/24/2019	8/16/2018	2/7/2019	8/20/2019	3/11/2020
Fotal Metals (µg/L)	Prenminary Screening Level	1/1/2016	11/10/2016	9/1/2017	1/20/2010	0/10/2019	2/0/2019	6/20/2019	5/11/2020	11/11/2010	0/31/2017	1/24/2010	0/10/2010	2/1/2019	6/20/2019	3/11/2020
Arsenic	5	3.3 U	3.3 U	3.3 U	3.3 U	1.0 U	1.0 U	10 U		3.3 U	3.3 U	3.3 U	2.04	1.0 U	10 U	1.8
Chromium	50	11 U	11 U	11 U	11 U	1.0 U	1.0 U	10 U		11 U	11 U	11 U	1.40 J	1.12	10 U	1.16 J-IS
Copper	640					5.0 U	5.0 U	50 U					5.62 J	5.0 U	50 U	10.6 J-IS
Lead	15	1.1 U	1.1 U	1.1 U	1.1 U	1.0 U	1.0 U	10 U		1.1 U	1.1 U	3.0	3.1	1.0 U	1.0 U	10.00
Mercury	2	0.5 U	0.50 U	0.50 U	0.50 U	1.0 U	1.0 U	10 U		0.50 U	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	10
Nickel	100					1.11	1.99	25.9					1.25 J	1.0 U	10 U	1.85 J-IS
Zinc	4800					5.0 U	10.1	50 U					5.0 UJ	5.0 U	50 U	50 U
Carcinogenic Polycyclic Aromatic Hydrocarbo						5.0 0	10.1	50 0			1		5.0 05	5.0 0	50 0	500
Benzo(a)anthracene	(µg, 1)	0.086	0.015	0.012	0.018	0.06 U	0.04 U	0.04 U		0.0098 U	0.0098 U	0.020	0.06 U	0.04 U	0.04 U	0.04 U
Benzo(a)pyrene	0.023	0.11	0.013	0.010 U	0.015	0.06 U	0.04 U	0.04 U		0.0098 U	0.0098 U	0.020	0.06 U	0.04 U	0.04 U	0.04 U
Benzo(b)fluoranthene	0.025	0.12	0.020	0.010 U	0.018	0.06 U	0.04 U	0.04 U		0.0098 U	0.0098 U	0.017	0.06 U	0.04 U	0.04 U	0.04 U
Benzo(j,k)fluoranthene		0.046	0.0095 U	0.010 U	0.012 U	0.06 U	0.04 U	0.04 U		0.0098 U	0.0098 U	0.015	0.06 U	0.04 U	0.04 U	0.04 U
Chrysene		0.09	0.042	0.012	0.028	0.06 U	0.04 U	0.04 U		0.0098 U	0.0098 U	0.018	0.06 U	0.04 U	0.04 U	0.04 U
Dibenz(a,h)anthracene		0.024	0.0095 U	0.010 U	0.012 U	0.06 U	0.04 U	0.04 U		0.0098 U	0.0098 U	0.011 U	0.06 U	0.04 U	0.04 U	0.04 U
Indeno(1,2,3-cd)pyrene		0.063	0.0095 U	0.010 U	0.012 U	0.06 U	0.04 U	0.04 U		0.0098 U	0.0098 U	0.0130	0.06 U	0.04 U	0.04 U	0.04 U
Total cPAHs	0.2	0.14	0.018	0.008	0.021							0.028				
Polychlorinated Biphenyls (µg/L)	0.2	0.14	0.010	0.000	0.021						1	0.020				
Aroclor 1016		0.047 U														
Aroclor 1221		0.047 U														
Aroclor 1232		0.047 U														
Aroclor 1242		0.047 U														
Aroclor 1248		0.047 U														
Aroclor 1254		0.047 U														
Aroclor 1260	0.04	0.047 U														
Fotal Petroleum Hydrocarbons (µg/L)	0.04	0.047 0									1					
Gasoline Range Organics	800	1.000	400	130	120	230	120	100 U		370	360	760	940	450	300	940
Diesel Range Organics	500	770 J	370 U	300 U	450	160	440	170 x		1,700	2,300	3,100	3,600	3,100	3400 x	13,000
Lube Oil	500	410 U	410 U	480 U	410 U	250 U	300 U	250 U		660	810	690	360	300 U	330 x	580
Volatile Organic Compounds (µg/L)	500	410 0	410 0	400 0	410 0	250 0	500 0	250 0		000	010	050	500	500 0	550 X	500
1,2,4-Trimethylbenzene	80	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U		0.2 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1 U
1,3,5-Trimethylbenzene	80	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U		0.2 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	10
Acetone	7200	12 U	10	5.0 U	5.0 U	50 U	50.0 U	50 U		5.0 U	5.0 U	5.0 U	50 U	50 U	50 U	50 U
Benzene	0.8	0.20 U	0.20	0.20 U	0.20 U	0.35 U	0.35 U	0.35 U		0.2 U	0.20 U	0.20 U	0.35 U	0.35 U	0.35 U	0.35 U
Ethylbenzene	700	0.20 U	0.20	0.20 0	0.20 U	1.0 U	1.0 U	1.0 U		3.1	0.20 U	0.200	1.0 U	1.0 U	1.0 U	1 U
m,p-Xylene	1600	0.20 U	0.76	0.69	0.20 U	2.0 U	2.0 U	2.0 U		0.51	0.20 U	0.44 0.40 U	2.0 U	2.0 U	2.0 U	2 U
Naphthalene	1600	1.5	1.3 U	1.0 U	1.0 U	0.06 U	0.4 U	1.0 U		1.3 U	1.0 U	1.0 U	0.12	2.0 U	1.0 U	0.4 U
o-Xylene	1600	0.20 U	0.34	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U		0.2 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1 U
Toluene	640	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10
Trichloroethene	0.54	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U		0.2 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	10
menioroethene	0.03	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.2 U	0.2 U		0.2 U	0.20 U	0.20 U	0.20 U	0.2 U	0.2 U	0.2 U

Notes:

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Abbreviations:

-- = not analyzed

 μ g/L = micrograms per liter

cPAHS = carcinogenic polycyclic aromatic

hydrocarbons

(D) = duplicate sample collected mg/L - milligram per liter

R = replaced

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

					кми	V-10			
12									
Analyte ^{1,2}	Preliminary Screening Level ³	11/11/2016	8/31/2017	1/25/2018	1/25/2018 (D)	8/16/2018	2/7/2019	8/19/2019	3/11/202
Γotal Metals (μg/L)	<u> </u>							10.11	
Arsenic	5	9.1	10	6.8	5.7	4.61	6.72	10 U	6.66
Chromium	50	11 U	11 U	11 U	11 U	1.35 J	2.00 J	10 U	10 U
Copper	640					5.0 UJ	5.0 UJ	50 U	50 U
Lead	15	1.1 U	1.1 U	1.1	1.1 U	1.0 U	1.0 U	1.0 U	10
Mercury	2	0.50 U	0.50 U	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	10
Nickel	100					1.0 UJ	1.0 UJ	10 U	10 U
Zinc	4800					5.0 UJ	5.0 UJ	50 U	50 U
Carcinogenic Polycyclic Aromatic Hydrocarb	ons (µg/L)								
Benzo(a)anthracene		0.0098 U	0.0094 U	0.011 U	0.011 U	0.06 U	0.04 U	0.04 U	0.04 U
Benzo(a)pyrene	0.023	0.0098 U	0.0094 U	0.011 U	0.011 U	0.06 U	0.04 U	0.04 U	0.04 U
Benzo(b)fluoranthene		0.0098 U	0.0094 U	0.011 U	0.011 U	0.06 U	0.04 U	0.04 U	0.04 U
Benzo(j,k)fluoranthene		0.0098 U	0.0094 U	0.011 U	0.011 U	0.06 U	0.04 U	0.04 U	0.04 U
Chrysene		0.0098 U	0.0094 U	0.011 U	0.011 U	0.06 U	0.04 U	0.04 U	0.04 U
Dibenz(a,h)anthracene		0.0098 U	0.0094 U	0.011 U	0.011 U	0.06 U	0.04 U	0.04 U	0.04 U
Indeno(1,2,3-cd)pyrene		0.0098 U	0.0094 U	0.011 U	0.011 U	0.06 U	0.04 U	0.04 U	0.04 U
Total cPAHs	0.2								
Polychlorinated Biphenyls (µg/L)									
Aroclor 1016									
Aroclor 1221									
Aroclor 1232									
Aroclor 1242									
Aroclor 1248									
Aroclor 1254									
Aroclor 1260	0.04								
otal Petroleum Hydrocarbons (µg/L)									
Gasoline Range Organics	800	110	3,400	270	260	4,800	200	2,800	130
Diesel Range Organics	500	1,300 U	1,800	2,300	2,300	1,400	970	2700 x	4,400
Lube Oil	500	420 U	430 U	410 U	410 U	250 U	320 U	250 U	250 U
/olatile Organic Compounds (µg/L)									
1,2,4-Trimethylbenzene	80	3.7	53	2.7	5.4	38	1.0 U	40	1 U
1,3,5-Trimethylbenzene	80	0.38	23	0.9	1.7	19	1.0 U	22	1 U
Acetone	7200	5.0 U	100 U	5.0 U	5.0 U	50 U	50 U	50 U	50 U
Benzene	0.8	0.7	8.2	0.20 U	0.20 U	1.5	0.35 U	1.5	0.35 U
Ethylbenzene	700	1.6	810	14	30	370	1.0 U	3.4	10
m,p-Xylene	1600	11	1100	28	65	1100	6	890	2 U
Naphthalene	160	1.3 U	20 U	1.0 U	1.0 U	0.51	0.4 U	1.0 U	0.4 U
o-Xylene	1600	0.29	22	0.42	0.58	1.0 U	1.0 U	1.0 U	10
Toluene	640	1.0 U	20 U	1.0	1.0	1.0 U	1.0 U	1.0 U	10
Trichloroethene	0.54	0.2 U	4.0 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	10
Vinyl Chloride	0.03	0.2 U	4.0 U	0.20 U	0.20 U	0.20 U	0.2 U	0.2 U	0.2 U

Notes:

1. Data qualifiers are as follows:
U = The analyte was not detected at the reporting limit indicated.
J = The value is an estimate.
UJ = The analyte was not detected at the estimated reporting limit indicated.
IS= Internal standard recoverty is outside of limits.
HS= Surrogate recovery is outsided of laboratory-specified limits.
HD= Imprecision between duplicate results
x = The sample chromatigraphic pattern does not resemble the fuel standard used
for quantification.
2. Bold values indicate detections.
3. Preliminary Screening Level as defined on Table 2 Selection of Preliminary
Groundwater Screening Levels (Ecology, 2019).
4. KMW-02 was abandoned by backfilling with bentonite on February 4, 2015,
and was replaced June 28, 2016.
5. KMW-03 was destroyed during building demolition on June 3, 2015, and was
replaced June 27, 2016.

6. Well not sampled due to Covid-19 site access restrictions.

Abbreviations:

-- = not analyzed µg/L = micrograms per liter

cPAHS = carcinogenic polycyclic aromatic hydrocarbons

(D) = duplicate sample collected mg/L - milligram per liter

R = replaced

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TABLE 4: SOIL VAPOR EXTRACTION SYSTEM ANALYTICAL SUMMARY^{1, 2, 3}

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

		Benzene	TPH as Hexane	
Sample	Date ⁴	(mg/m ³)	(mg/m ³)	
	Western SVI			
SVE-09	11/7/17	0.069	310	No
	5/30/19	<0.1	630	1. 1
	6/4/19	<0.1	440	.
SVE-10	11/7/17	0.53	820 J	
	5/30/19	< 0.5	3,500	
	6/4/19	< 0.5	2,300	2. 1
SVE-11	11/7/17	0.069	220	
	5/30/19	<0.1	1,300	3. /
	6/4/19	<0.1	660	
SVE-12	11/7/17	0.44	1,400 J	
	5/30/19	<0.1	3,300	4
	6/4/19	<0.2	1,400	
SVE-13	11/7/17	0.23	600 J	
	5/30/19	<0.1	2,100	
	6/4/19	<0.1	760	
	Eastern SVE			
SVE-02	11/7/17	< 0.03	3.4	Abb
	5/30/19	< 0.1	<10	SVE
	6/4/19	<0.1	14	TPF
SVE-04	11/7/17	< 0.03	310	
0.10.	5/30/19	< 0.1	470	
	6/4/19	< 0.1	400	
SVE-06	11/7/17	0.041	280	
0.1.00	5/30/19	< 0.1	36	
	6/4/19	<0.1	33	
SVE-08	11/7/17	< 0.03	65	
0.1.00	5/30/19	< 0.1	30	
	6/4/19	< 0.1	16	
SVE-07	11/7/17	< 0.03	82	
0.10.	5/30/19	< 0.1	70	
	6/4/19	<0.1	230	
SVE-05	11/7/17	0.50	2,200 J	
	5/30/19	< 0.2	5,100	
	6/4/19	< 0.5	3,500	
SVE-03	11/7/17	1.1	1,900 J	
0.2.00	5/30/19	< 0.2	1,900	
	6/4/19	<0.2	2,400	
SVE-01	11/7/17	0.14	450	
572 01	5/30/19	<0.1	10	
	6/4/19	<0.1	14	

a qualifiers are as follows:

the result is estimated because the centration exceeded the calibration ge of the instrument.

d values indicate results above the orting limits.

lytes that were not detected above the thod detection limit are listed as less n the detection limit.

SVE system began operating without sparging on November 7, 2017. The SVE not operate between October 16, 2018 April 1, 2019. SVE system with air sparge an operating on May 29, 2019.

viations:

soil vapor extraction

total petroleum hydrocarbons

TABLE 4: SOIL VAPOR EXTRACTION SYSTEM ANALYTICAL SUMMARY^{1, 2, 3}

		Benzene	TPH as Hexane
Sample	Date ⁴	(mg/m ³)	(mg/m ³)
	Eastern SVE Wells (c	ontinued)	
Influent	11/7/17	0.18	650 J
	5/30/19	<0.1	1,100
	6/4/19	<0.1	640
	1/9/20	<0.5	8,200
	2/21/20	<0.1	33
	3/17/20	<0.00011	135
	4/20/20	0.035	90
	5/18/20	< 0.049	110
Effluent	11/7/17	< 0.03	28
	5/30/19	<0.1	41
	6/4/19	<0.1	20
	1/9/20	<0.1	1,400
	2/21/20	<0.1	<10
	3/17/20	<0.00086	<2.2
	4/20/20	< 0.0023	<2.3
	5/18/20	< 0.0099	<1.1

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

Notes:

1. Data qualifiers are as follows:

J = the result is estimated because the concentration exceeded the calibration range of the instrument.

2. **Bold** values indicate results above the reporting limits.

3. Analytes that were not detected above the method detection limit are listed as less than the detection limit.

4. The SVE system began operating without air sparging on November 7, 2017. The SVE did not operate between October 16, 2018 and April 1, 2019. SVE system with air sparge began operating on May 29, 2019.

Abbreviations:

SVE = soil vapor extraction

TPH = total petroleum hydrocarbons

TABLE 5: SVE/CATOX and PSCAA Permit Compliance Results

Former Kelly-Moore Manufacturing Facility, Seattle, Washington

	CATOX Results (Influent / Effluent) CATOX Operation						Mass Removal / Removal Rates									Pre-Contre	ol Emission						
										FID Results*				Laboratory Res	sults - TPH Gas	oline Range		Laboratory Res	ults - Benzene			Rate for	· PSCAA**
	FID Field Readi	ngs	Laboratory Resu	lts					Operational	Mass	Mass	Mass	Cumulative	Mass	Mass	Mass	Cumulative	Mass	Mass	Mass	Cumulative	TPH	Benzene
			Total TPH-Gasol	ine Range	Benzene		Extraction	Hour	Hours of	Removal	Removal	Removed	Mass	Removal	Removal	Removed	Mass	Removal	Removal	Removed	Mass	Emission	Emission
	Influent	Effluent	Influent	Effluent	Influent	Effluent	Rate	Meter	Interval	Efficiency	Rate	per Interval	Removed	Efficiency	Rate	per Interval	Removed	Efficiency	Rate	per Interval	Removed	Rate	Rate
Date	(ppm)	(ppm)	(µg/m³)	(µg/m3)	(µg/m3)	(µg/m3)	(scfm)	(hours)	(hours)	(%)	(lbs/day)	(lbs)	(lbs)	(%)	(lbs/day)	(lbs)	(lbs)	(%)	(lbs/day)	(lbs)	(lbs)	(lbs/day)	(lbs/day)
6/4/2019	50.4	1.2	640,000	20,000	100.0	99.0	154	1,515.0	121.8	97.6%	2.40	24.4	1,743.7	96.9%	8.6	60.7	1,356.8	1.0%	0.00001	0.00007	0.00866	8.87	0.001
7/2/2019	150.0	1.6	100	99	100.0	99.0	154	2,182.6	667.6	98.9%	7.23	133.9	1,877.7	1.0%	0.0	119.5	1,476.2	1.0%	0.00001	0.00039	0.00905	0.00	0.001
8/7/2019	149.3	0.0	100	99	220.0	99.0	371	3,012.0	829.4	100.0%	17.53	427.8	2,305.5	1.0%	0.0	0.0	1,476.2	55.0%	0.00404	0.07002	0.07907	0.00	0.007
9/4/2019	348.0	248.0	100	99	100.0	99.0	0	3,563.0	551.0	28.7%	0.00	402.4	2,707.9	1.0%	0.0	0.001	1,476.2	1.0%	0.00000	0.09272	0.17179	0.00	0.000
1/9/2020	6,333.0	2,075.0	8,200	1,400	500.0	100.0	78	3,598.0	35.0	67.2%	105.10	153.3	2,861.2	82.9%	0.0	0.1	1,476.3	80.0%	0.00281	0.00205	0.17384	0.06	0.004
2/14/2020	55.0	1.3	180,000	20,000	100.0	99.0	198	3,897.0	299.0	97.6%	3.36	675.6	3,536.8	88.9%	2.9	18.1	1,494.4	1.0%	0.00002	0.01760	0.19143	3.21	0.002
3/17/2020	100.9	7.6	135,000	2,200	11.0	0.9	225	4,056.0	159.0	92.5%	6.64	33.1	3,569.9	98.4%	2.7	18.3	1,512.7	92.2%	0.00021	0.00074	0.19217	2.73	0.000
4/20/2020	98.9	4.8	90,000	2,300	35.0	2.3	155	4,854.0	798.0	95.1%	4.62	187.2	3,757.1	97.4%	1.2	65.0	1,577.7	93.4%	0.00046	0.01099	0.20316	1.26	0.000
5/18/2020	6.2	0.3	110,000	1,100	5.9	0.9	138	5,525.0	671.0	95.2%	0.26	68.1	3,825.2	99.0%	1.4	36.0	1,613.7	84.9%	0.00006	0.00724	0.21041	1.37	0.000
6/16/2020	25.0	1.3	170,000	1,300	65.0	1.0	150	6,141.0	616.0	94.8%	1.12	17.7	3,843.0	99.2%	2.3	46.6	1,660.3	98.5%	0.00086	0.01188	0.22229	2.29	0.001
Permit		< 10 ppm								See below											Permit	2.74	0.018

* = mass as equivalent hexane

** = Pre-control inlet emissions based on laboratory data

Conversions / Constants

Hexane Mol Weight =	86 grams/mol
Molar Volume =	24.45 liters
1 meter =	3.28 feet
1 pound =	453592 milligrams
1 day =	1440 minutes

Acronyms

μg/m³ - micrograms per cubic meter % - percent CATOX - Catalytic Oxidizers FID - Flame Ionization Detector Ibs - pounds ppm - parts per million ppmv - parts per million by volume PSCAA - Puget Sound Clean Air Agency scfm - standard cubic feet per minute TPH - total petroleum hydrocarbons

PSCAA Permit No. 11291 Requirements:

FID Field Reading for Removal Efficiency / Discharge Concentration

1) Greater than or equal to 97% if inlet TPH is greater than or equal to 200 ppmv (measured as hexane with FID).

2) Greater than or equal to 90% if inlet TPH is less than 200 ppmv (measured as hexane with FID).

3) Effluent at less than or equal to 10 ppmv (measured as hexane with FID).

4) CATOX flow rate must not exceed 300 scfm.

5) Use only electric CATOX.

6) CATOX temperature must be a minimum of 650F degrees.

7) System must shutdown if CATOX temperature drops below 650F degrees during normal operation.8) CATOX must have sensor to monitor system temperature continuously.

No Air Treatment Controls are Required if:

- 9) Inlet TPH emissions are less than or equal to 2.74 lbs/day
- 10) Inlet benzene emissions are less than equal to 0.018 lbs/day

	Notes:
1)	System was shutdown on September 4, 2
	requirements.
2)	The mass of contaminant removed per in
	rate of removal of the current data and t interval. For the September 4, 2019 mas to the amount of time shown on the hou
3)	Benzene and TPH-Gasoline Range influe represent samples that were below the c calculations from dividing by zero (0). A
	Results that would be above influent em The January 9, 2020 field results reflect t
	is not indicative of continuous operation extended operation and CATOX may not which is required for removal efficiency.

ber 4, 2019, as CATOX results did not meet mass removal efficiency per PSCAA permit

l per interval is typically averaged over the interval using the average and the prior date multiplied by the hour meter reading for the

19 mass removed, the removal rate from the prior visit was applied

the hour meter reading for the September 4, 2019.

e influent and effluent laboratory results that are 100 and 99 μ g/m3 w the detection level of 100 μ g/m3. The 99 value is used to keep the ϕ (0). Actual values could be lower than shown.

(0). Actual values could be lower than shown.

ent emission rates to allow no treatment per PSCAA permit. eflect the CATOX system restart after months of being offline and

eration. Initial startup concentrations are usually higher than during nay not have been consistently reached above minimum temperature riency.



Appendix A



GROUNDWATER SAMPLING LOG Low Flow Sampling

MONITORING WELL/PIEZOMETER NUMBER- KMW-02R

Project Name: Kelly-Moore	
Project Number: 14697009	Date: <u>၁۶۲۵/۲</u> Weather Conditions: ۲۰۸۸
Location: Seattle, WA	
Sampler: Lucas Kerner	Wind Speed/Direction: MA
	WELL INFORMATION

Casing Diameter (in):	2"					
Top of Casing Elevation (ft): 21.63'					
Initial Depth to Water (ft):	10:78					
Wellhead Condition:	OKAY					

Groundwater Elevation (ft): _____/0,85 Depth of Well Casing (ft): ______ Actual Purge Volume (gal): ______55

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
60.78	0975	5,85	0,216	14,5	88	5.87	10.83	
10,78,	9928	5.83	0.212	145	92	5.17	7.15	
10.78	0931	5.61	0.711	14.6	96.5	464	4.54	
10.70	0939	5.80	0.21	14.6	107.3	4,00	4.68	
10.78	0937	5.79	0.211	14.6	107	274	4.96	_
10-78	0940	5,77	0.211	46	112	3.46	4.50	
10.70	09433	5.76	0.211	14.6	115	3.20	4.25	
(0.703	0946	5.75	0.7.11	14.6	118	3.09	4.16	
W.70	0949	5.76	0.21	14.0	121	2.97	4.10	
	0952	- 51	ABLE -	a				
								l <u>e</u>
								,

Sample ID No.: KMW-02R- 0870 9									
Water Level Ind. Model & No.: Solinst Model 101									
ORP/DO Meter Model & No.: YSI-Pro Dss									
Purge Equipment Used: Peristaltic Pump with dedicated tubing									
Sampling Equipment Used: YSI Pro Dss									
Purge Start Time: 09:27	Sample Collection Time: 0755								
Purge Completion Time: 0941 09-55-0957	Purging Method: SAA								
Average Purge Rate (mL/min): 275	Sample Containers Used: Lab Provided								
Analytical Lab: Friedman & Bruya Inc.	Chemical Analyses: See COC								
Other Field Observations:									



MONITORING WELL/PIEZOMETER NUMBER- KMW-03R

Proje	ct Name:	Kelly-Moore

Project Number: 14697009	
Location: Seattle, WA	
Sampler: Lucas Kerner	

Date: <u>08/70/19</u> Weather Conditions: <u>SUNV</u>

Wind Speed/Direction: <u>///</u>

WELL INFORMATION

21.54'
21.04
10.70
NKAY

Groundwater Elevation (ft):	10.84
Depth of Well Casing (ft):	
Actual Purge Volume (gal):	2991

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
10:70	1155	6.78	0.822	18.8	68	5.34	6.40	4 1 M
10.70	1153	6.87	0.781	18.5	10:2:	40.41	3.62	J.
12.70	12:01	6.88	0.751	185	-12	3.52	3.68	
10.70	1209	6.88	0.772	185	-23	3.10	3.74	
10.70	1207	6.88	0.701	18.4	-29	7.90	3.75	
10.70	1210	6.89	0.680	18.4	-34	27	3.95	
10.70	1213	6.89	0.657	184	-39	2.48	4:0	
10.70	1214	6.90	0.637	1841	.43	7.34	4.63	
10.70	1219	6.90	0.624	18.4	46	2:25	5.01	
W.FO	1222	6.qd	0.613	18.4	-47	2.19	4.78	
					n	2		
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			1		<u> </u>			

Sample ID No .: KMW-03R- 60	22D19					
Water Level Ind. Model & No .:	Solinst Model 101					
ORP/DO Meter Model & No.:	YSI-Pro Dss					
Purge Equipment Used:	Peristaltic Pump with dedicated tubing					
Sampling Equipment Used:	YSI Pro Dss					
Purge Start Time:	11:52	Sample Collection Time:	12:25			
Purge Completion Time:	17:22	Purging Method:	SAA			
Average Purge Rate (mL/min):	700	Sample Containers Used:				
Analytical Lab: Friedman & Bri	uya Inc.	Chemical Analyses: See				
Other Field Observations:						

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-



MONITORING WELL/PIEZOMETER NUMBER- KMW-04

Project Name: Kelly-Moore

Project Number: <u>14697009</u> Location: <u>Seattle</u>, WA Sampler: Lucas Kerner Date: <u>08/20/20,9</u> Weather Conditions: <u>SUVNY</u> Wind Speed/Direction: <u>MA</u>

WELL INFORMATION

Casing Diameter (in):	2"
Top of Casing Elevation (1	ft): 18.56'
Initial Depth to Water (ft).	789
Wellhead Condition: CA	Y- ORANGE HOD INSIN

Groundwater Elevation (ft): ____ Depth of Well Casing (ft): ____ Actual Purge Volume (gal): ____

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
7.89	1345	6.65	0.417	17.7	-30	6-26	9.69	
7.89	1348	6.44	0.375	17,8	-40	5.04	11.30	
289	1351	6.35	0.354	12.1	-423	4.22	15.0	
7.89	1354	6.32	0.347	18.2	46	3.53	7.8	
7.89	1357	6.29	0:349	18.1	-49	3.04	1.2	
7.99	1490	6.28	0.351	18.1 -	50	2.86	10.8	
	1403	6.27	0.351	187	-50 -51	7.70	10.7	3
	1406	6.27	0.351	WB.1		2.56	10.5	
	1409	6.26	0:351	18.1	-51	243	10,6	_
	1412	6.20	0.352	18.1	-52	2.38	10.8	
31								
				_				
	_							
ater Lev RP/DO M Irge Equ	No.: <u>KN</u> el Ind. Mo leter Mod lipment U Equipme	lel & No.: Jsed:	: <u>Solinst Mode</u> YSI-Pro Dss <u>Peristaltic Pu</u> YSI Pro Dss	al 101	dedicate	d tubing		
urge Start Time: 1342 urge Completion Time: 1412 urge Completion Time: 1412 verage Purge Rate (mL/min): 200 nalytical Lab: Friedman & Bruya Inc. Sample Collection Time: 1242 Purging Method: Sample Collection Time: 1415 Chemical Analyses: See COC								



MONITORING WELL/PIEZOMETER NUMBER- KMW-06

Project Name: Kelly-Moore

	Date: 08/19/19			
Project Number: <u>14697009</u>	Weather Conditions: 65° SuVVY			
Location: Seattle, WA				
Sampler: Lucas Kerner	Wind Speed/Direction:			

WELL INFORMATION

 \mathbf{s}^{\prime}

Casing Diameter (in):	2"	
Top of Casing Elevation (ft): 19.80'	
Initial Depth to Water (ft):	9.09	
Wellhead Condition:	OKAY	

Groundwater Elevation (ft): _____ Depth of Well Casing (ft): _____ Actual Purge Volume (gal): _____

PURGING MEASUREMENTS

	WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
7.09	1350 C	-1354	6.35	0.568	19.8	-1.5	6.80	14.01	
	9.09	1357	6.31	0.557	19.6	-77	5,10	16.98	
	9.09	1400	6.31	0.534	19.7	-42	4.10	71.71	
	9.00	1403	6.32	0.523	19.7	-48	7.70	73.47	
	9.09	1400	6.37,	0.508	19.7	-54	233	73.88	
	909	1499	6.32	0.507	20.2	-59	298	73.67	
	9.09	1412	0.32	0,504	29.0	-605	2.83	71.57	
	9.09	14:15	0.32	0.499	20.0	-62	2.70	20.80	
e:	9.9	1418	6.32	0.496	20.0	-idy	2.50	20.75	
	9.29	1421	6.32	0.493	20.0	-65	2.40	70.48	
	9.09	1424	6.30	0.490	20.0	-ide	2:38	20.65	
					-	<u></u>			
							_		

Sample ID No .: KMW-06- 02	31917	
Water Level Ind. Model & No.:	Solinst Model 101	
ORP/DO Meter Model & No.:	YSI-Pro Dss	
Purge Equipment Used:	Peristaltic Pump with dedi	cated tubing
Sampling Equipment Used:	YSI Pro Dss	
Purge Start Time:	1351	Sample Collection Time: 143-
Purge Completion Time:	4430-1425	Purging Method: SAA
Average Purge Rate (mL/min):		Sample Containers Used: Lab Provided
Analytical Lab: Friedman & Bri	uya Inc.	Chemical Analyses: See COC
Other Field Observations: _/	15/MSD taken.	27 bottles 7 18 vors, 6 Amber 3 meters



MONITORING WELL/PIEZOMETER NUMBER- KMW-07

Project Name: Kelly-Moore

Project Number: <u>14697009</u> Location: <u>Seattle</u>, WA

Date:	08/20/19	
Weather Conditions:	OKAY	

Wind Speed/Direction: MA

WELL INFORMATION

Casing Diameter (in):	2"
Top of Casing Elevation (ft)	: 21.63'
Initial Depth to Water (ft):	10:79
Wellhead Condition:	OKAY

Sampler: Lucas Kerner

Groundwater Elevation (ft): ________ Depth of Well Casing (ft): _______ Actual Purge Volume (gal): ______

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
10.79	10:15	6.15	0.213	(6,)	192	721	16:28	
10:79	10:18	6.14	0.213	16.1	170	638	18.42	—
10.79	10:21	6.09	0.211	162	136	4.81	18.25	
10:79	10:24	6.05	0.718	16.2	175	43	15.15	
10.79	FTGI	6.01	0.279	16.7	116	3.78	12.76	
10.79	10:30	5.99	0.232	10.2	117.5	3.48	11.4	
	10.33	5.97	0.246	16.2	105	3.75	11.6	
10-79	10:36	5.96	0.745	16.2	106	3.09	11.5	
10.19	10:35	5.94	0.747	16.7	(00)	3.01	11.6	
62.79	10.42	5.96	0-749	16.2	100	2.93	11.4	
				LL				

Sample ID No .: KMW-07-08	2019		
Water Level Ind. Model & No.:	Solinst Model 101		
ORP/DO Meter Model & No.:	YSI-Pro Dss		
Purge Equipment Used:	Peristaltic Pump with dedica	ted tubing	
	YSI Pro Dss		
Purge Start Time:	10:12	Sample Collection Time:	1045
Purge Completion Time:	10:42	Purging Method:	SAA
Average Purge Rate (mL/min):		Sample Containers Used:	Lab Provided
Analytical Lab: Friedman & Bru	iya Inc.	Chemical Analyses: See	
6// El 11 61 / 11	· · · · · · · · · · · · · · · · · · ·		

Other Field Observations:

MONITORING WELL/PIEZOMETER NUMBER- KMW-08

Project Name: Kelly-Moore

Project Number: <u>14697009</u> Location: <u>Seattle</u>, WA

Sampler: Lucas Kerner

Date:	08/20/19	
Weather Conditions:	SUNNY	

\$ 18.

WOC

Wind Speed/Direction: <u>//</u>/

WELL INFORMATION

Casing Diameter (in):	2"
Top of Casing Elevation (ft)	: 21.65'
Initial Depth to Water (ft):	10.80
Wellhead Condition:	OKAP

Groundwater Elevation (ft): _____ Depth of Well Casing (ft): _____ Actual Purge Volume (gal): _____

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
60.8	11:03	5.69	2.02	21.0	160	5.25	48.2	ORANGEFLOC
10.8	11:00	5.65	2.154	21.0	152.6	4.80	3265	
W.8	11:09	5.63	2760	2.0	141	3.95	26	
(0.8	11:12	5.62	2347	21.1	130.3	\$ 3.45	6.37	
W.G	11:15	5.62	2:397	21.1	133	3.23	14.8	
0.0	1(:18	5.61	2.453	210	133	7.953	9.10	
(09	1(:21	5.60	2472	210	132.9	2.66	8.33	
(0.9)	11.29	5.59	2.488	21.0	153.1	2.50	7.85	
VD	127	5:50 -	2501	21.0	133.4	2:33	7.40	
Q.D	1:30	5.58	2.508	21.1	133.7	.226	7.52	
			21 A.					
						IK		54
×						de la		

-10

Sample ID No.: KMW-08- C	82019	
Water Level Ind. Model & No.:	Solinst Model 101	
ORP/DO Meter Model & No.:	YSI-Pro Dss	
Purge Equipment Used:	Peristaltic Pump with dee	dicated tubing
Sampling Equipment Used:	YSI Pro Dss	
Purge Start Time: Purge Completion Time: Average Purge Rate (mL/min): Analytical Lab: <u>Friedman & Bri</u> Other Field Observations: <u>0</u> 3	uya Inc.	Sample Collection Time: <u>11:35</u> Purging Method: <u>SAA</u> Sample Containers Used: <u>Lab Provided</u> Chemical Analyses: <u>See COC</u> <i>Augusta Margue</i>
		are prize



MONITORING WELL/PIEZOMETER NUMBER- KMW-09

Project Name: Kelly-Moore

Project Number: <u>14697009</u> Location: <u>Seattle, WA</u> Sampler: <u>Lucas Kerner</u> Date: _________ Weather Conditions: _________

Wind Speed/Direction: _//A

WELL INFORMATION

Casing Diameter (in):	2"
Top of Casing Elevation (ft)	: 18.14'
Initial Depth to Water (ft):	7.48'
Wellhead Condition:	ILAY

Groundwater Elevation (ft): _____ Depth of Well Casing (ft): _____ Actual Purge Volume (gal): ______

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
7.4B	0827	6.79	0.329	18.1	89.0	9.53	6-63	
7.48	0830	6:55	0:327	17.8	22	7.25	5.67	
7,48	0855	6.33	0.321	18.1	-8.3	5.71	4.79	
748	0836	6.34	0.315	18:2	-20	5:03	5.82	
7.40	0839	6.36	0.313	18:3	-28	4.50	7.52	
7.40	0842	6.38	0.312	18.4	-35 -39	3,98	15.60	
	0845	0:39	0.313	18.5	-39	3.67	19.76	
7.48	i O BUB	6.40	0.312	18.5	-41	3.50	23.15	
7.48	0851	6.40	0.315	18.0	-44.3	3.25	8.72	
7.48	0854	6.40	2.314	186	-47	3.05	8.70	
~								
- N								
	÷		Parameters	d.2 ,	of st	abiliz	ach	30 min Puzze

Sample ID No.: KMW-09-08	2019		
Water Level Ind. Model & No .:	Solinst Model 101)	
ORP/DO Meter Model & No.:	YSI-Pro Dss	b.	
Purge Equipment Used:	Peristaltic Pump with dedic	ated tubing	
Sampling Equipment Used:	YSI Pro Dss		
Purge Start Time:	08 24	Sample Collection Time:	0855
Purge Completion Time:	0854	Purging Method:	SAA
Average Purge Rate (mL/min):		Sample Containers Used:	Lab Provided
Analytical Lab: Friedman & Bruya Inc.		Chemical Analyses: See	000

Other Field Observations:

Updated 1/31/19



MONITORING WELL/PIEZOMETER NUMBER- KMW-10

Project Name: Kelly-Moore

Project Number: 14697009

Date: <u>08/19/7019</u> Weather Conditions: <u>68°۴ Cloudy</u>

Location: Seattle, WA Sampler: Lucas Kerner

Wind Speed/Direction: N/A

WELL INFORMATION

Casing Diameter (in):	2"	
Top of Casing Elevation (ff	t): 20.39'	
Initial Depth to Water (ft):	9.891	
Wellhead Condition:	OKAY	

Groundwater Elevation (ft): ____0.50 Depth of Well Casing (ft): _____ Actual Purge Volume (gal): _____

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
9.89	11:43			_				
9.89	11:40	6.48	0.640	16.8	-25.2	7.56	38.52	
9.89	11:49	6.31	0.625	16.6	-52	5.51	24.96	
9.89	11:52	6.28	0.625	16.6	-61	4.47	22.00	
9.89	11:55	6.28	0.619	16.6	-64	3.94	23	
9.89	11:58	6.28	0.616	166	-66	3.59	21.57	
9.89	12:01	6.27	0.614	16.6	-67.3	3.24	19.64	
9.89	12001	6.26	0.612	16.9	-67	3.26	20,21	_
	1705	Para	rites	\$4.50				
					2			
				_		-		
10						181 V.		
				_				

Sample ID No.: KMW-10- 08	1919		
Water Level Ind. Model & No.:	Solinst Model 101		
ORP/DO Meter Model & No.:	YSI-Pro Dss		
Purge Equipment Used:	Peristaltic Pump with dedic	cated tubing	
Sampling Equipment Used:	YSI Pro Dss		1
Purge Start Time:	11:43	Sample Collection Time:	1256
Purge Completion Time:	17.05	Purging Method:	SAA
Average Purge Rate (mL/min):		Sample Containers Used:	
Analytical Lab: Friedman & Br	uya Inc.	Chemical Analyses: See	
Other Field Observations: Due	alicete: KMU-10-	9-081919 taken	Q. 1208

WATER LEVEL MONITORING RECORD



Project Name: Kelly-Moore Project and Task Number: 14697009							
Date: <u>02/0</u>	7/2019	Measured I	oy: <u>L. Kerner</u>	•	Instrumer	nt Used: Water Level Meter	
Note: For	you conveni	ience, the fol	lowing abbre	eviations ma	y be used.		
P = Pum	nping	I = Inacces	ssible	D = Dedica	ated Pump		
ST = Stee	el Tape I	ES = Electric	Sounder	MP = Measu	uring Point	WL = Water Level	
Well No.	Time	MP Elevation (feet)	Water Level Below MP (feet)	Water Level Elevation (feet)	Previous Water Level Below MP	Remarks	
KMW-02R	11:04	21.63'	10.78	10.85	9.17		
KMW-03R	10:59	24.54'	10.70	10.84	9.37		
KMW-04	11:12	18.56'	7.89	10.67	6.60	110	
KMW-06	11:07	19.80'	9.09	10.71	7.77		
KMW-07	11:03	21.63'	10.79	10.84	9.21		
KMW-08	11:01	21.65'	10.80	10.85	9.31		
Concernance in a second provide the second second	11:09	18.14'	7.48	10.66	6.15		
KMW-10	10:50	20.39'	9.89	10.50	8.65		
	-						
	-						

Page 1 of 1

wood.

MONITORING WELL/PIEZOMETER NUMBER- KMW-04

Project Name: Kelly-Moore

Project Number: <u>14697009</u> Location: <u>Seattle</u>, WA

Sampler: Lucas Kerner

_	_	10010	Kelly-I	e:

Date: _ C	311	110	0	
Weather Conditions:		AI	ν	_

Wind Speed/Direction: _______

WELL INFORMATION

Casing Diameter (in):	2"
Top of Casing Elevation (f	t): <u>18.56'</u>
Initial Depth to Water (ft):	5.91
Wellhead Condition:	DICAY

Groundwater Elevation (ft): Depth of Well Casing (ft): Actual Purge Volume (gal): <u>7.555//</u>

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
5.91	1335	6.09	0.277	12.4	-171	1.12	25	
5.91	1338	6.10	0.275	12.6	-30.5	0.74	25	
5.91	(34)	6.14	0.7.81	12.7	-42	0.57	25	
542	1344	615	0.783	126	47	0.51	26	
5.42	1247	6.16	0.786	17.5	-49	046	25	
5.93	1350	617	6.290	12.5	-51	045	76	1.
593	1353	6.15	0.292	12.5	-SI	0.43	26	41
593	1356	6.15	0.29 3	175	-51	0.42	25	
-								
)	Stable						1	
		2						
							~	N
					11			

Sample ID No.: KMW-04- 0	SILW Salinat Madal 101	
Water Level Ind. Model & No.: ORP/DO Meter Model & No.:	YSI-Pro Dss	
Purge Equipment Used:	Peristaltic Pump with	dedicated tubing
Sampling Equipment Used:	YSI Pro Dss	Converte Collection Times 11200
Purge Start Time: Purge Completion Time: Average Purge Rate (mL/min) Analytical Lab: Friedman & Br	<u>1332</u> <u>1356</u> : <u>150</u> ruya Inc.	Sample Collection Time: 14:05 Purging Method: SAA Sample Containers Used: Lab Provided Chemical Analyses: See COC
Other Field Observations:		KMU-04-9-031120 @14:10

wood.

MONITORING WELL/PIEZOMETER NUMBER- KMW-06

Project Name: Kelly-Moore

Project Number: <u>14697009</u> Location: <u>Seattle</u>, WA

Sampler: Lucas Kerner

Moore

Weather Conditions: OVER AST

Wind Speed/Direction: ____/A

WELL INFORMATION

Casing Diameter (in):	2"
Top of Casing Elevation (ft	:): 19.80'
Initial Depth to Water (ft):	7.08
	KAY

Groundwater Elevation (ft): _____ Depth of Well Casing (ft): _____ Actual Purge Volume (gal): _____

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
7.11	11:50	5.70	0.900	14:3	28.9	3.96	270	
7.10	11:59	5.71	0.908	14.2	276	3,27	28.1	
31)	12:02	5.71	0.905	13.9	27.1	2.43	30.4	
711	12:05	5.70	0.902	14.0	27.0	2.40	30.1	
7.1	17:00	5.71	0.900	14.0	27.1	2.45	30.2	
	nup							
	12:0014			1	CI.	123		
	17:4017				In	1.		
- marked a	12:15.70		11			10		
	17:23		201			~	1	
			1.2					

Sample ID No .: KMW-06- 03) 70	770
Water Level Ind. Model & No .: Solin	
ORP/DO Meter Model & No.: YSI-	Pro Dss
Purge Equipment Used: Peris	staltic Pump with dedicated tubing
Sampling Equipment Used: YSI	Pro Dss
Purge Start Time:	Sample Collection Time: <u>12:75</u>
Purge Completion Time:	17:08 Purging Method: SAA
Average Purge Rate (mL/min):	2017 Sample Containers Used: Lab Provided
Analytical Lab: Friedman & Bruya I	nc. Chemical Analyses: See COC

Other Field Observations: MS/MSD taken. 27 bottles. 18 voas, 6 amber, & 3 metals

wood.

MONITORING WELL/PIEZOMETER NUMBER- KMW-09

Project Name: Kelly-Moore

	Date:	
Project Number: 14697009	Weather Conditions: OVER CAST	
Location: Seattle, WA		
Sampler: Lucas Kerner	Wind Speed/Direction://	

WELL INFORMATION

Casing Diameter (in):	2"
Top of Casing Elevation (ft):	: 18.14'
Initial Depth to Water (ft):	5.46'
Wellhead Condition: OK	44

Groundwater Elevation (ft): _____ Depth of Well Casing (ft): _____ Actual Purge Volume (gal): _____

1111

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
5.48	11:09	6.07	0.552	14.2	-47.6	1.89	58.4	
5.48	ilit	6.29	0.550	14.2	-31.9	200	49,7	Emptied Cell
5.40	11:15	6.13	0.537	14.2	-388	0.83	49,3	
5.46	11:18	6.14	0.529	14.3	-44.0	0.50	40.1	
5.47	11:21	6.15	0.521	14.5	-47.0	0.45	38.0	
5.48	11:24	GVO	0.518	14:3	-51	0.41	35.0	
5.48	11:27	6.16	0.516	14.3	-52	0.40	31.0	
5.48	11:30	610	0.515	14.3	- 53.4	0.30	29,0	
5.47	11:33	6.16	0.513	14.3	-54.8	0:40	27.0	
5.47	1:36	6.16	0.512	14.3	-55,6	0.35	249	
1								

Sample ID No .: KMW-09- 03	117020						
Water Level Ind. Model & No .:	Solinst Model 101						
ORP/DO Meter Model & No.:	YSI-Pro Dss						
Purge Equipment Used:	Peristaltic Pump with dedicated tubing						
Sampling Equipment Used:	YSI Pro Dss						
Purge Start Time: Purge Completion Time: Average Purge Rate (mL/min) Analytical Lab: <u>Friedman & Br</u>	uya Inc.	Sample Collection Time: Purging Method: Sample Containers Used: Chemical Analyses: <u>See (</u>	SAA Lab Provided COC				
Other Field Observations:	Turbiais did not	stabilize after 30 min	Perly .				

Page <u>1</u> of ____

wood.

GROUNDWATER SAMPLING LOG Low Flow Sampling

MONITORING WELL/PIEZOMETER NUMBER- KMW-10

Project Name: Kelly-Moore

Date:	03/11	120
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Weather Conditions: OVERMST

Project Number: 14697009	
Location: Seattle, WA	
Sampler: Lucas Kerner	

Wind Speed/Direction: NA

WELL INFORMATION

Casing Diameter (in):	2"
Top of Casing Elevation ((ft): 20.39
Initial Depth to Water (ft):	7.98
	SLAY

Groundwater Elevation (ft): _____

Actual Purge Volume (gal):

PURGING MEASUREMENTS

WL (ft btoc)	Time	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	DO (mg/L)	Turbidity (NTUs)	Notes
8.00	14:39	6.4	0.539	M.Z	-29	1.05	42	
801	1442	6.31	0.540	14.4	-41	0.70	41	
8.01	1445	6:32	0.542	14.5	-48	0.52	39	
8.01	1448	6.34	0.543	14.6	-52	047	37	
8.01	1451	6.35	0.542	14.6	-54	0.44	30	
8.01	1454	6.35	0.55tug	1 14.7	-55	0.43	32	
8.01	1457	0.37	0.542	14.8	-59	0.42	29	
8.01	1500	6-30	0.544	14.8	-62	0.39	23	
8.01		6.39	0.544	14.9	-61.9	0.38	19	
8.01	150	4.39	0.54	14.9 .	63	0.37	19	
				120				
			A	M				

Sample ID No.: <u>KMW-10-03</u> Water Level Ind. Model & No.	Solinst Model 101		
ORP/DO Meter Model & No.:	YSI-Pro Dss		4
Purge Equipment Used:	Peristaltic Pump with d	ledicated tubing	
Sampling Equipment Used:	YSI Pro Dss		
Purge Start Time:	1436	Sample Collection Time:	15:10
Purge Completion Time:	1506	Purging Method:	SAA
Average Purge Rate (mL/min)	: 1517	Sample Containers Used:	Lab Provided
Analytical Lab: Friedman & B		Chemical Analyses: See	

WATER LEVEL MONITORING RECORD



Project Na	me: Kelly-N	Noore		Projec	t and Task N	umber: 14697009	-
						t Used: Water Level Meter	-
		ience, the fol					
P = Pun ST = Stee		I = Inacces ES = Electric		D = Dedica MP = Measu	ated Pump uring Point	WL = Water Level	_
Well No.	Time	MP Elevation (feet)	Water Level Below MP (feet)	Water Level Elevation (feet)	Previous Water Level Below MP	Remarks	
KMW-02R		21_63'					
KMW-03R		24.54					_
KMW-04	10.55	18.56'	5.91				_
KMW-06	10:35	19.80'	7.08				-
,KMW-07		21.63	1				-
KMW-08-		21.65					
KMW-09	10:39	18.14'	5.40				
KMW-10	0:40	20.39'	7.98				_
							_
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2							

All Well's allowed 30 min. Ventilition/equilibrium.



Appendix B

ORGANIC DATA ASSESSMENT SUMMARY

Project Information							
Project Name:	Kelly-Moore Paint	Lab Name:	Friedman & Bruya, Inc.				
Project Number:	0146970060.0010	Lab Report Number:	003197				
Reviewer's Name:	Marie Bevier	Number of Samples:	6				
Review Date:	06/29/2020	Matrix:	Water				

Field Sample Identification	Collection Date	Laboratory Sample Identification	Notes
KMW-04-031120	March 11, 2020	003197-01	
KMW-04-9-031120	March 11, 2020	003197-02	
KMW-06-031120	March 11, 2020	003197-03	Matrix Spike/Matrix Spike Duplicate
KMW-09-031120	March 11, 2020	003197-04	
KMW-10-031120	March 11, 2020	003197-05	
Trip Blanks		003197-06	

As	Assessment Summary							
Pai	rameter:	Gasoline- Range Organics (GRO) by NWTPH-Gx	Diesel Range Organics (DRO) and Oil Range Organics (ORO) by NWTPH-Dx	Metals by EPA Method 6020B	Volatile Organic Compounds (VOCs) by EPA Method 8260D	Polycyclic Aromatic Hydrocarbons (PAHs) by 8270E SIM		
1.	Chain of Custody		complete, except there ad the lack of a sample					
2.	Receipt Temperature	The recorded receip	ot temperature is accep	otable at 3 degrees Ce	elsius.			
3.	Hold Time	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable		
4.	Blank Detections	None	None	None	None	None		
5.	Surrogate Recoveries	Qualified ^a	Acceptable	Not Applicable	Acceptable	Acceptable		
6.	Laboratory Control Sample (LCS) Recoveries	Acceptable	Acceptable	Acceptable	Informational ^j	Acceptable		
7.	LCS/LCS Duplicate (LCSD) Precision	Not applicable	Acceptable	Not Applicable	Acceptable	Acceptable		
8.	Matrix Spike (MS) Recoveries	Informational ^b	Informational ^c	Informational ^f	Informational ^k	Not Applicable		
9.	MS,MS Duplicate (MSD) Precision	Acceptable	Qualified ^d	Qualified ^g	Acceptable	Not Applicable		

Assessment Summary					
Parameter:Gasoline- Range Organics (GRO) by NWTPH-GxDiesel Range Organics (DRO) and Oil Range Organics (ORO) by NWTPH-Dx		Metals by EPA Method 6020B	Volatile Organic Compounds (VOCs) by EPA Method 8260D	Polycyclic Aromatic Hydrocarbons (PAHs) by 8270E SIM	
10. Other Quality Control Issues	None	Informational ^e	Reporting ^h Qualified ⁱ	Reporting ¹	None

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

Reas	Reason code definitions				
EXC	This result has been excluded from the dataset.				
HD	Imprecision between duplicate results.				
HS	Surrogate recovery is outside of laboratory-specified limits.				
IS	Internal standard recovery is outside of limits.				

Notes	Description	Action Required
а	According to the laboratory's notes, the surrogate recovery for sample KMW-06-031120 was outside of limits due to matrix effects in the GRO analysis.	Wood J qualified the detected GRO result from this sample because of potential analytical bias. (Qualifier and reason code: J-HS)
b	GRO recoveries were high at 233% and 196% in the MS and MSD performed on sample KMW-06-031120.	The concentration detected in the unspiked native sample was almost four times greater than the spike concentration and it is not possible to assess data usability for this analyte in this sample based on MS recoveries.
с	DRO recovery was low at 1% in the MSD performed on sample KMW-06-031120.	The concentration detected in the unspiked native sample was more than 10 times greater than the spike concentration and it is not possible to assess data usability for this analyte in this sample based on MS recoveries.
d	The relative percent difference (RPD) between MS and MSD results for DRO was high at 196%.	Wood J qualified the detected DRO result from sample KMW-06-031120 because of potential analytical imprecision. (Qualifier and reason code: J-HD)
e	According to the laboratory's notes, the chromatographic patterns from the DRO and ORO analyses of samples KMW-06-031120 and KMW-09-031120; and the DRO analysis of samples KMW-04-031120, KMW-04-9-031120, and KMW-10-031120 do not match the fuel standards used for quantitation.	None.
f	Copper recovery was low at 74% in the MS and zinc recoveries were high at 149% in the MS and low at 68% in the MSD performed on sample KMW-06-031120.	The copper and zinc concentrations detected in the unspiked native sample were greater than 7 times the spike concentrations and it is not possible to assess data usability for these analytes in this sample based on MS recoveries.
g	The RPD between MS and MSD results for zinc was high at 68%.	Wood J qualified the detected zinc result from sample KMW-06-031120 because of potential analytical imprecision. (Qualifier and reason code: J-HD)

Notes	Description	Action Required
h	According to the laboratory's notes, there were internal standard failures in the metal analyses. The laboratory analyzed the samples at dilutions and the internal standard recoveries were acceptable in the diluted analyses, but the laboratory reported both sets of results.	When there were multiple results for the same parameter in the same sample, Wood generally chose to call the result that was not qualified reportable, unless the analyte was detected in one or both of analyses, then the higher detected result was considered reportable and the other result was excluded from the dataset. (Reason code: EXC)
i	The laboratory J qualified results with internal standard recoveries outside of limits.	If Wood determined that the laboratory's J qualified results should be considered reportable, Wood J qualified the result to indicate that it should be considered an estimated value. (Qualifier and reason code: J-IS)
j	trans-1,2-Dichloroethene (119%,LCS), 1,1,1-trichloroethane (120%, LCS), m,p-xylene (114%, 113%), and o-xylene (118%, LCS) recoveries were high in the LCS and/or LCSD associated with the initial VOC analysis of the samples reviewed in this report.	These analytes either were not detected in the associated sample or were not reported from a dilution and data usability is not adversely affected by the potential high analytical bias.
k	4-Methyl-2-pentanone (156%, 148%), 1,1,2-trichloroethane (119%, MS), 2-hexanone (144%, 136%), 1,3-dichloropropane (117%, MS), 1,1,2,2-tetrachloroethane (164%, 163%), 1,2,3-trichloropropane (134%, 129%), 1,2-dibromo-3-chloropropne (141%, 139%), and naphthalene (158%, 156%) recoveries were high in the MS and/or MSD performed on sample KMW-06-031120.	Recoveries were high, and these analytes were not detected in the unspiked native sample. Data usability is not adversely affected by the potential high analytical bias.
I	The laboratory ve qualified results with concentrations greater than the calibration range.	The laboratory reanalyzed all results with ve qualified data at 1:100 dilutions and reported all results from both analyses. Wood excluded the ve qualified results from the original analyses and excluded all results from the 1:100 dilution, except for the results from the analytes that were ve qualified in the undiluted analyses. (Reason code: EXC)

Data Qualified Du	Data Qualified During Validation				
Sample Identification	Method	Parameter	Concentration	Qualifier and Reason Code	
KMW-04-031120	6020B	Chromium	< 1 µg/L	EXC	
KMW-04-031120	6020B	Copper	30.4 µg/L	EXC	
KMW-04-031120	6020B	Nickel	1.21 µg/L	J-IS	
KMW-04-031120	6020B	Nickel	< 10 µg/L	EXC	
KMW-04-031120	6020B	Zinc	< 5 µg/L	EXC	
KMW-04-031120	8260D	Toluene	400 µg/L	EXC	
KMW-04-031120	8260D	Ethylbenzene	990 µg/L	EXC	
KMW-04-031120	8260D	m,p-Xylene	3,200 µg/L	EXC	
KMW-04-031120	8260D	o-Xylene	1,500 µg/L	EXC	
KMW-04-031120	8260D	All results from the 1:100 dilution, except for toluene, ethylbenzene, m,p- xylene, and o-xylene		EXC	
KMW-04-9-031120	6020B	Chromium	< 1 µg/L	EXC	
KMW-04-9-031120	6020B	Copper	28.4 µg/L	EXC	
KMW-04-9-031120	6020B	Nickel	1.16 µg/L	J-IS	
KMW-04-9-031120	6020B	Nickel	< 10 µg/L	EXC	
KMW-04-9-031120	6020B	Zinc	< 5 µg/L	EXC	
KMW-04-9-031120	8260D	Toluene	380 µg/L	EXC	
KMW-04-9-031120	8260D	Ethylbenzene	930 µg/L	EXC	
KMW-04-9-031120	8260D	m,p-Xylene	2,900 µg/L	EXC	
KMW-04-9-031120	8260D	o-Xylene	1,300 µg/L	EXC	

Data Qualified Du	Data Qualified During Validation					
Sample Identification	Method	Parameter	Concentration	Qualifier and Reason Code		
KMW-04-9-031120	8260D	All results from the 1:100 dilution, except for toluene, ethylbenzene, m,p- xylene, and o-xylene		EXC		
KMW-06-031120	NWTPH-Gx	GRO	3,900 µg/L	J-HS		
KMW-06-031120	NWTPH-Dx	DRO	26,000 µg/L	J-HD		
KMW-06-031120	6020B	Chromium	3.78 µg/L	J-IS		
KMW-06-031120	6020B	Chromium	< 10 µg/L	EXC		
KMW-06-031120	6020B	Copper	116 µg/L	EXC		
KMW-06-031120	6020B	Nickel	20.4 µg/L	EXC		
KMW-06-031120	6020B	Zinc	274 µg/L	EXC		
KMW-06-031120	6020B	Zinc	392 µg/L	J-HD		
KMW-09-031120	6020B	Chromium	1.16 µg/L	J-IS		
KMW-09-031120	6020B	Chromium	< 10 µg/L	EXC		
KMW-09-031120	6020B	Copper	10.6 µg/L	J-IS		
KMW-09-031120	6020B	Copper	< 50 µg/L	EXC		
KMW-09-031120	6020B	Nickel	1.85 µg/L	J-IS		
KMW-09-031120	6020B	Nickel	< 10 µg/L	EXC		
KMW-09-031120	6020B	Zinc	< 5 µg/L	EXC		
KMW-10-031120	6020B	Chromium	< 1 µg/L	EXC		
KMW-10-031120	6020B	Copper	< 5 µg/L	EXC		
KMW-10-031120	6020B	Nickel	< 1 µg/L	EXC		
KMW-10-031120	6020B	Zinc	< 5 µg/L	EXC		

Notes:

< = less than

µg/L = micrograms per liter

ORGANIC DATA ASSESSMENT SUMMARY

Project Information					
Project Name:	Kelly-Moore Paint	Lab Name:	Friedman & Bruya, Inc.		
Project Number:	0146970060.0010	Lab Report Number:	902134		
Reviewer's Name:	Marie Bevier	Number of Samples:	10		
Review Date:	06/30/2020	Matrix:	Water		

Field Sample Identification	Collection Date	Laboratory Sample Identification	Notes
KMW-02R-020819	02/08/2019	902134 -01	
KMW-03R-020819	02/08/2019	902134 -02	
KMW-04-020719	02/07/2019	902134 -03	
KMW-06-020719	02/07/2019	902134 -04	Matrix spike/matrix spike duplicate
KMW-08-020819	02/08/2019	902134 -05	
KMW-09-020719	02/07/2019	902134 -06	
KMW-10-020719	02/07/2019	902134 -07	
KMW-10-9-020719	02/07/2019	902134 -08	
KMW-7-020819	02/08/2019	902134 -09	
Trip Blanks		902134 -10	

As	Assessment Summary						
Pa	Parameter: Gasoline- Range Organics (GRO) by NWTPH-Gx		Diesel Range Organics (DRO) and Oil Range Organics (ORO) by NWTPH-Dx	Polycyclic Aromatic Hydrocarbons (PAHs) by 8270D SIM	Metals by EPA Method 6020B	Volatile Organic Compounds (VOCs) by EPA Method 8260C	
1.	Chain of Custody		complete, except there pratory and the lack of				
2.	Receipt Temperature	The recorded receip	The recorded receipt temperature is acceptable at 2 degrees Celsius.				
3.	Hold Time	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	
4.	Blank Detections	None	None	None	None	Acceptable	
5.	Surrogate Recoveries	Qualified ^a	Acceptable	Acceptable	Not Applicable	Acceptable	
6.	Laboratory Control Sample (LCS) Recoveries	Acceptable	Acceptable	Acceptable	Acceptable	Informational ^k	

As	Assessment Summary					
Parameter:		Gasoline- Range Organics (GRO) by NWTPH-Gx	Diesel Range Organics (DRO) and Oil Range Organics (ORO) by NWTPH-Dx	Polycyclic Aromatic Hydrocarbons (PAHs) by 8270D SIM	Metals by EPA Method 6020B	Volatile Organic Compounds (VOCs) by EPA Method 8260C
7.	LCS/LCS Duplicate (LCSD) Precision	Not Applicable	Acceptable	Acceptable	Not Applicable	Not Applicable
8.	Matrix Spike (MS) Recoveries	Informational ^b	Informational ^c	Qualified ^f Informational ^g	Acceptable	Acceptable
9.	MS,MS Duplicate (MSD) Precision	Acceptable	Qualified ^d	Qualified ^h Informational ⁱ	Acceptable	Acceptable
10.	Other Quality Control Issues	None	Informational ^e	None	Reporting ^j	Reporting ¹

Qual	Qualifier definitions					
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.					
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.					

Reas	Reason code definitions		
EXC	This result has been excluded from the dataset.		
HD	Imprecision between duplicate results.		
HS	Surrogate recovery is outside of laboratory-specified limits.		
LM	Low matrix spike recovery. Result may be biased low.		

Notes	Description	Action Required
а	According to the laboratory's notes, the surrogate recovery for sample KMW-06-020719 was outside of limits due to matrix effects in the GRO analysis.	Wood J qualified the detected GRO result from this sample because of potential analytical bias. (Qualifier and reason code: J-HS)
b	GRO recoveries were high at 140% and 154% in the MS and MSD performed on sample KMW-06-020719.	The GRO concentration detected in the unspiked native sample was more than twice the spike concentration and it is not possible to assess data usability for this analyte in this sample based on MS recoveries.
с	DRO was not recovered from the MSD performed on sample KMW-06-020719.	The DRO concentration detected in the unspiked native sample was more than eight times the spike concentration and it is not possible to assess data usability for this analyte in this sample based on MS recoveries.
d	The relative percent difference (RPD) between DRO results was high at 200% in the MS and MSD performed on sample KMW-06-020719.	Wood J qualified the DRO result from the unspiked native sample due to potential analytical imprecision. (Qualifier and reason code: J-HD)

Notes	Description	Action Required
е	According to the laboratory's notes, DRO results from samples KMW-03R-020819, KMW-04-020719, KMW-06-020719, KMW-08-020819, KMW-09-020719, KMW-10-020719, KMW-0-9-020719, and the ORO result from sample KMW-06-020719 do not match the hydrocarbon patterns from the standards used for quantitation.	None
f	Benzo(a)anthracene (53%), chrysene (48%), benzo(b)fluoranthene (45%), benzo(k)fluoranthene (38%), and benzo(a)pyrene (42%) recoveries were low in the MS performed on sample KMW-06-020719.	Wood UJ qualified the non-detected benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and benzo(a)pyrene results from the unspiked native sample due to potential low analytical bias. (Qualifier and reason code: UJ-LM)
g	Acenaphthylene recoveries were low at 26% and 2% in the MS and MSD performed on sample KMW-06-020719.	The acenaphthylene concentration detected in the unspiked native sample was 28 times the spike concentration and it is not possible to assess data usability for this analyte in this sample based on MS recovery.
h	The RPD between acenaphthylene results was high at 171% in the MS and MSD performed on sample KMW-06-020719.	Wood J qualified the detected acenaphthylene result from the unspiked native sample due to potential analytical imprecision. (Qualifier and reason code: J-HD)
i	RPDs between benzo(a)anthracene (26%), chrysene (25%), benzo(b)fluoranthene (36%), benzo(k)fluoranthene (55%), benzo(a)pyrene (42%), indeno(1,2,3-cd)pyrene (55%), dibenz(a,h)anthracene (61%), and benzo(g,h,i)perylene (54%) results were high in the MS and MSD performed on sample KMW-06-020719.	These analytes were not detected in the unspiked native sample and data usability is not adversely affected by the potential analytical imprecision.
j	According to the laboratory's notes, there were internal standard failures in the metal analyses. The laboratory analyzed the samples at dilutions and the internal standard recoveries were acceptable in the diluted analyses, but the laboratory reported both sets of results.	When there were multiple results for the same parameter in the same sample, Wood generally chose to call the result that was not qualified reportable, unless the analyte was detected in one or both of analyses, then the higher detected result was considered reportable and the other result was excluded from the dataset. (Reason code: EXC)
k	1,1-Dichloroethane recovery was high at 122% in the LCS associated with the analysis of these samples.	1,1-Dichloroethane was not detected in the associated samples and data usability is not adversely affected by the potential high analytical bias.
Ι	The laboratory ve qualified results with concentrations greater than the calibration range.	The laboratory reanalyzed all results with ve qualified data at 1:100 dilutions and reported all results from both analyses. Wood excluded the ve qualified results from the original analyses and excluded all results from the 1:100 dilution, except for the results from the analytes that were ve qualified in the undiluted analyses. (Reason code: EXC)

Data Qualified During Validation				
Sample Identification	Method	Parameter	Concentration	Qualifier and Reason Code
KMW-04-020719	8260C	Ethylbenzene	2,500 µg/L	EXC
KMW-04-020719	8260C	m,p-Xylene	5,400 µg/L	EXC
KMW-04-020719	8260C	All results except for ethylbenzene and m,p-xylene from the 1:100 dilution.		EXC
KMW-06-020719	NWTPH-Gx	GRO	2,200 µg/L	J-HS
KMW-06-020719	NWTPH-Dx	DRO	19,000 µg/L	J-HD
KMW-06-020719	8270D SIM	Acenaphthylene	28 µg/L	J-HD
KMW-06-020719	8270D SIM	Benzo(a)anthracene	< 0.04 µg/L	UJ-LM
KMW-06-020719	8270D SIM	Chrysene	< 0.04 µg/L	UJ-LM
KMW-06-020719	8270D SIM	Benzo(b)fluoranthene	< 0.04 µg/L	UJ-LM
KMW-06-020719	8270D SIM	Benzo(k)fluoranthene	< 0.04 µg/L	UJ-LM
KMW-06-020719	8270D SIM	Benzo(a)pyrene	< 0.04 µg/L	UJ-LM
KMW-10-020719	6020B	Chromium	2.00 µg/L	EXC
KMW-10-020719	6020B	Copper	< 5 µg/L	EXC
KMW-10-020719	6020B	Nickel	< 1 µg/L	EXC
KMW-10-020719	6020B	Zinc	< 5 µg/L	EXC
KMW-10-020719	6020B	Arsenic	6.55 µg/L	EXC
KMW-10-9-020719	6020B	Chromium	2.00 µg/L	EXC
KMW-10-9-020719	6020B	Copper	< 5 µg/L	EXC
KMW-10-9-020719	6020B	Nickel	< 1 µg/L	EXC
KMW-10-9-020719	6020B	Zinc	< 5 µg/L	EXC
KMW-10-9-020719	6020B	Arsenic	6.38 µg/L	EXC

Notes:

< = less than $\mu g/L$ = micrograms per liter

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 23, 2020

Lucas Kerner, Project Manager Wood Environment & Infrastructure Solutions, Inc. One Union Square 600 University Street, Suite 600 Seattle, WA 98101

Dear Mr Kerner:

Included are the results from the testing of material submitted on March 12, 2020 from the Kelly Moore 01469709, F&BI 003197 project. There are 38 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

ale Nelf

Michael Erdahl Project Manager

Enclosures WEI0323R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 12, 2020 by Friedman & Bruya, Inc. from the Wood Environment & Infrastructure Solutions Kelly Moore 01469709, F&BI 003197 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Wood Environment & Infrastructure Solutions
003197 -01	KMW-04-031120
003197 -02	KMW-04-9-031120
003197 -03	KMW-06-031120
003197 -04	KMW-09-031120
003197 -05	KMW-10-031120
003197 -06	Trip Blanks

A 6020B internal standard failed the acceptance criteria for the samples. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

The m,p-xylene and o-xylene laboratory control samples exceeded the acceptance criteria. Samples KMW-04-031120 and KMW-04-9-031120 were diluted and reported without qualifiers.

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197 Date Extracted: 03/16/20 Date Analyzed: 03/16/20 and 03/17/20

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (<u>% Recovery)</u> (Limit 51-134)
KMW-04-031120 003197-01 1/10	37,000	129
KMW-04-9-031120 003197-02 1/10	35,000	129
KMW-06-031120 003197-03	3,900	ip
KMW-09-031120 003197-04	940	111
KMW-10-031120 003197-05	130	91
Method Blank 00-642 MB	<100	93

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197 Date Extracted: 03/12/20 Date Analyzed: 03/12/20

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	Diesel Range (C ₁₀ -C ₂₅)	Motor Oil Range (C25-C36)	Surrogate <u>(% Recovery)</u> (Limit 41-152)
KMW-04-031120 003197-01	2,300 x	<250	54
KMW-04-9-031120 003197-02	2,300 x	<250	59
KMW-06-031120 003197-03	26,000 x	1,500 x	64
KMW-09-031120 003197-04	13,000 x	580 x	77
KMW-10-031120 ⁰⁰³¹⁹⁷⁻⁰⁵	4,400 x	<250	95
Method Blank 00-632 MB	<50	<250	144

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-031120 03/12/20 03/13/20 03/13/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-01 003197-01.094 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic Chromium	9.62 <1 J		
Copper	$30.4~\mathrm{J}$		
Lead	1.45		
Mercury	<1		
Nickel	$1.21~\mathrm{J}$		
Zinc	<5 J		

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-031120 03/12/20 03/13/20 03/16/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-01 x10 003197-01 x10.077 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)	- F	
Chromium	<10		
Copper	58.1		
Nickel	<10		
Zinc	<50		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-9-031120 03/12/20 03/13/20 03/13/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-02 003197-02.095 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	9.88		
Chromium	<1 J		
Copper	$28.4~\mathrm{J}$		
Lead	1.45		
Mercury	<1		
Nickel	$1.16~\mathrm{J}$		
Zinc	$<5 \mathrm{J}$		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-9-031120 03/12/20 03/13/20 03/16/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-02 x10 003197-02 x10.078 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Chromium	<10		
Copper	54.2		
Nickel	<10		
Zinc	<50		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-06-031120 03/12/20 03/13/20 03/13/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-03 003197-03.096 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	6.07		
Chromium	$3.78~\mathrm{J}$		
Copper	116 J		
Lead	4.70		
Mercury	<1		
Nickel	$20.4~\mathrm{J}$		
Zinc	$274~{ m J}$		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-06-031120 03/12/20 03/13/20 03/16/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-03 x10 003197-03 x10.079 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Chromium	<10		
Copper	149		
Nickel	26.8		
Zinc	392		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-09-031120 03/12/20 03/13/20 03/13/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-04 003197-04.099 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	1.80		
Chromium	$1.16~\mathrm{J}$		
Copper	$10.6 \mathrm{J}$		
Lead	<1		
Mercury	<1		
Nickel	$1.85~\mathrm{J}$		
Zinc	$<5 \mathrm{J}$		

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

<50

Client ID:	KMW-09-031120	Client:	Wood Environment & Infrastructure Solutions
Date Received:	03/12/20	Project:	Kelly Moore 01469709
Date Extracted:	03/13/20	Lab ID:	003197-04 x10
Date Analyzed:	03/16/20	Data File:	003197-04 x10.085
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
	Concentration		
Analyte:	ug/L (ppb)		
Chromium	<10		
Copper	<50		
Nickel	<10		

Zinc

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-031120 03/12/20 03/13/20 03/13/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-05 003197-05.100 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic Chromium Copper Lead Mercury Nickel Zinc	6.66 <1 J <5 J <1 <1 <1 J <5 J		

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

<50

Client ID:	KMW-10-031120	Client:	Wood Environment & Infrastructure Solutions
Date Received:	03/12/20	Project:	Kelly Moore 01469709
Date Extracted:	03/13/20	Lab ID:	003197-05 x10
Date Analyzed:	03/16/20	Data File:	003197-05 x10.086
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
	Concentration		
Analyte:	ug/L (ppb)		
Chromium	<10		
Copper	<50		
Nickel	<10		

Zinc

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank NA 03/13/20 03/13/20 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 I0-153 mb I0-153 mb.068 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		
Chromium	<1		
Copper	<5		
Lead	<1		
Mercury	<1		
Nickel	<1		
Zinc	<5		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-03 03/12/20 03/13/20 03/14/20 Water ug/L (ppb)	31120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 0146970 003197-01 031362.D GCMS9 VM	z Infrastructure Solutions 9
Surrogates: 1,2-Dichloroethane Toluene-d8 4-Bromofluorobenz		% Recovery: 105 100 106	Lower Limit: 50 50 50	Upper Limit: 150 150 150	
Compounds:		Concentration ug/L (ppb)	Compou	nds:	Concentration ug/L (ppb)
Dichlorodifluorome Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromet Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ethe trans-1,2-Dichloroethane 2,2-Dichloropropan cis-1,2-Dichloroethane 1,1-Dichloroethane 2,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1-Dichloropropan Carbon tetrachlorid Benzene Trichloroethene 1,2-Dichloropropan Bromodichloromethane 4-Methyl-2-pentane cis-1,3-Dichloropro Toluene trans-1,3-Dichloropro	hane er (MTBE) ethene ene (EDC) ne e de nane one pene		Tetrach Dibromo 1,2-Dibr Chlorob Ethylbe 1,1,1,2-T m,p-Xyle o-Xylend Styrene Isopropy Bromofo n-Propy Bromob 1,3,5-Tr 1,1,2,2-T 1,2,3-Tr 2-Chloro 4-Chloro tert-But 1,2,4-Tr sec-Buty p-Isopro 1,3-Dich 1,2-Dich 1,2,4-Tr	nzene Cetrachloroethane ene ene vibenzene orm lbenzene enzene imethylbenzene Cetrachloroethane ichloropropane otoluene otoluene otoluene otoluene otoluene pylbenzene imethylbenzene pyltoluene ilorobenzene ilorobenzene oroo.3-chloropropane ichlorobenzene orobutadiene	
1,1,2-Trichloroetha 2-Hexanone	-	<1 <1 <10	-	ichlorobenzene	0.0 <1

ENVIRONMENTAL CHEMISTS

Date Received: Date Extracted: Date Analyzed: Matrix:	KMW-04-03 03/12/20 03/19/20 03/19/20 Water ug/L (ppb)	% Recovery: 94	Client: Project: Lab ID: Data File: Instrument: Operator: Lower Limit: 57	Wood Environment & Kelly Moore 0146970 003197-01 1/100 031930.D GCMS4 VM Upper Limit: 121	& Infrastructure Solutions 9
Toluene-d8 4-Bromofluorobenze		$\begin{array}{c} 100 \\ 100 \end{array}$	63 60	$127\\133$	
1		Concentration		100	Concentration
Compounds:		ug/L (ppb)	Compou	nds:	ug/L (ppb)
Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluorometh Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ether trans-1,2-Dichloroet 1,1-Dichloroethane	r (MTBE)	<1,000 <20 <100 <100 <100 <5,000 <100 <100 <100 <100 <100 <100	Dibromo 1,2-Dibr Chlorobo Ethylber 1,1,1,2-T m,p-Xyle o-Xylene Styrene Isopropy Bromofo	nzene Fetrachloroethane ene e vlbenzene	<100 <100 <100 3,000 <100 7,500 1,400 <100 <100 <100 <100 <100
2,2-Dichloropropane cis-1,2-Dichloroethe Chloroform 2-Butanone (MEK) 1,2-Dichloroethane (1,1,1-Trichloroethane 1,1-Dichloropropene	ne (EDC) ne	<100 <100 <100 <1,000 <100 <100 <100	Bromobe 1,3,5-Tr 1,1,2,2-T 1,2,3-Tr 2-Chloro 4-Chloro tert-But	enzene imethylbenzene Fetrachloroethane ichloropropane otoluene otoluene ylbenzene	<100 <100 <100 <100 <100 <100 <100
Carbon tetrachloride Benzene Trichloroethene 1,2-Dichloropropane Bromodichloromethane 4-Methyl-2-pentano cis-1,3-Dichloroprop Toluene trans-1,3-Dichloropri 1,1,2-Trichloroethan 2-Hexanone	e ane ne ene copene	<100 <35 <100 <100 <100 <100 <1,000 <100 380 <100 <100 <1,000	sec-Buty p-Isopro 1,3-Dich 1,4-Dich 1,2-Dich 1,2-Dibr 1,2,4-Tr Hexachl Naphtha	imethylbenzene vlbenzene pyltoluene lorobenzene lorobenzene omo-3-chloropropane ichlorobenzene orobutadiene alene ichlorobenzene	120 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-9- 03/12/20 03/13/20 03/14/20 Water ug/L (ppb)	.031120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 0146970 003197-02 031363.D GCMS9 VM	z Infrastructure Solutions 9
Surrogates: 1,2-Dichloroethane Toluene-d8 4-Bromofluorobenz		% Recovery: 105 102 108	Lower Limit: 50 50 50	Upper Limit: 150 150 150	
Compounds:		Concentration ug/L (ppb)	Compou	nds:	Concentration ug/L (ppb)
Dichlorodifluorome Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromet Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ethe trans-1,2-Dichloroeth attrans-1,2-Dichloroeth chloroform 2-Butanone (MEK) 1,2-Dichloropropan cis-1,2-Dichloroethane 1,1-Trichloroethane 1,1-Dichloropropan Carbon tetrachlorid Benzene Trichloroethene 1,2-Dichloropropan Bromodichlorometh Dibromomethane 4-Methyl-2-pentane cis-1,3-Dichloropropan Toluene	hane er (MTBE) ethene ene (EDC) ne e de nane pene		1,3-Dich Tetrachl Dibromo 1,2-Dibr Chlorobe Ethylbei 1,1,1,2-T m,p-Xylen o-Xylene Isopropy Bromofo n-Propy Bromobe 1,3,5-Tr 1,1,2,2-T 1,2,3-Tr 2-Chloro tert-But 1,2,4-Tr sec-Buty p-Isopro 1,3-Dich 1,2-Dibr 1,2,4-Tr Hexachl	loropropane loroethene ochloromethane comoethane (EDB) enzene nzene Tetrachloroethane ene ene dibenzene orm lbenzene enzene imethylbenzene fetrachloroethane ichloropropane otoluene ylbenzene pylbenzene imethylbenzene dibenzene pyltoluene ilorobenzene ilorobenzene ilorobenzene omo-3-chloropropane orobutadiene	
trans-1,3-Dichlorog 1,1,2-Trichloroetha 2-Hexanone	-	<1 <1 <10	Naphtha 1,2,3-Tr	alene ichlorobenzene	5.5 <1

ENVIRONMENTAL CHEMISTS

Client Sample ID: KMW-04 Date Received: 03/12/20 Date Extracted: 03/19/20 Date Analyzed: 03/19/20 Matrix: Water Units: ug/L (pp Surrogates: 1,2-Dichloroethane-d4 Toluene-d8 4-Bromofluorobenzene		Client: Project: Lab ID: Data File: Instrument: Operator: Lower Limit: 57 63 60	Wood Environment & Kelly Moore 0146970 003197-02 1/100 031931.D GCMS4 VM Upper Limit: 121 127 133	z Infrastructure Solutions 9
Compounds:	Concentration ug/L (ppb)	Compou	nds:	Concentration ug/L (ppb)
 Dichlorodifluoromethane Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ether (MTBE) trans-1,2-Dichloroethene 1,1-Dichloroethane 2,2-Dichloropropane cis-1,2-Dichloroethene Chloroform 2-Butanone (MEK) 1,2-Dichloroethane 1,1-Dichloropropene Carbon tetrachloride Benzene Trichloroethene 1,2-Dichloropropane Bromodichloromethane Dibromomethane 4-Methyl-2-pentanone cis-1,3-Dichloropropene Toluene trans-1,3-Dichloropropene 1,2-Trichloroethane 2-Hexanone 	<100 <1,000 <20 <100 <100 <5,000 <100 <100 <500	1,3-Dich Tetrach Dibromo 1,2-Dibr Chlorob Ethylbe 1,1,1,2-T m,p-Xylen Styrene Isopropy Bromofo n-Propy Bromofo 1,3,5-Tr 1,1,2,2-T 1,2,3-Tr 2-Chloro 4-Chloro tert-But 1,2,4-Tr sec-Buty p-Isopro 1,3-Dich 1,2-Dich 1,2-Dibr 1,2,4-Tr Hexachl Naphtha	loropropane loroethene ochloromethane omoethane (EDB) enzene nzene Cetrachloroethane ene orm lbenzene enzene imethylbenzene Cetrachloroethane ichloropropane otoluene ylbenzene imethylbenzene otoluene ylbenzene pyltoluene lorobenzene lorobenzene lorobenzene omo-3-chloropropane orobutadiene	< 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 & 3,300 < 100 & 8,200 & 1,500 < 100 & 100 & 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & < 100 & <

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-06-03 03/12/20 03/13/20 03/17/20 Water ug/L (ppb)	31120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 0146970 003197-03 031743.D GCMS9 MS	t Infrastructure Solutions 9
Surrogates: 1,2-Dichloroethane Toluene-d8 4-Bromofluorobenze		% Recovery: 95 104 102	Lower Limit: 50 50 50	Upper Limit: 150 150 150	
Compounds:		Concentration ug/L (ppb)	Compou	nds:	Concentration ug/L (ppb)
Dichlorodifluorome Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluorometh Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ethe trans-1,2-Dichloroe 1,1-Dichloroethane 2,2-Dichloropropan cis-1,2-Dichloroethane 2-Butanone (MEK) 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloropropen Carbon tetrachlorid Benzene Trichloroethene 1,2-Dichloropropan Bromodichlorometh Dibromomethane 4-Methyl-2-pentano cis-1,3-Dichloropropen	nane r (MTBE) thene e ene (EDC) ne e le le		Tetrachl Dibromo 1,2-Dibr Chlorobe Ethylber 1,1,1,2-T m,p-Xyle o-Xylene Styrene Isopropy Bromofo n-Propy Bromobo 1,3,5-Tr: 1,1,2,2-T 1,2,3-Tr: 2-Chloro 4-Chloro tert-But 1,2,4-Tr: sec-Buty p-Isopro 1,3-Dich 1,2-Dibr 1,2,4-Tr:	nzene Vetrachloroethane ene Vlbenzene orm lbenzene enzene imethylbenzene Vetrachloroethane ichloropropane otoluene ylbenzene imethylbenzene vlbenzene pyltoluene lorobenzene lorobenzene omo-3-chloropropane ichlorobenzene	$<1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\$
Toluene trans-1,3-Dichlorop 1,1,2-Trichloroetha 2-Hexanone		<1 <1 <1 <10	Naphtha	orobutadiene alene ichlorobenzene	<1 <1 <1

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-09-03 03/12/20 03/13/20 03/17/20 Water ug/L (ppb)	31120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 0146970 003197-04 031744.D GCMS9 MS	t Infrastructure Solutions 9
Surrogates: 1,2-Dichloroethane Toluene-d8 4-Bromofluorobenz		% Recovery: 92 105 101	Lower Limit: 50 50 50	Upper Limit: 150 150 150	
Compounds:		Concentration ug/L (ppb)	Compou	nds:	Concentration ug/L (ppb)
Dichlorodifluorome Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromet Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ethe trans-1,2-Dichloroethane 2,2-Dichloropropan cis-1,2-Dichloroethane 2,2-Dichloropropan cis-1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropropan Carbon tetrachlorid Benzene Trichloroethene 1,2-Dichloropropan Bromodichlorometh Dibromomethane 4-Methyl-2-pentane cis-1,3-Dichloropropan	hane er (MTBE) thene e ene (EDC) ne e le hane pene		Tetrachl Dibromo 1,2-Dibr Chlorobe Ethylber 1,1,1,2-T m,p-Xyle o-Xylene Styrene Isopropy Bromofo n-Propy Bromobe 1,3,5-Tr 1,1,2,2-T 1,2,3-Tr 2-Chloro 4-Chloro tert-But 1,2,4-Tr sec-Buty p-Isopro 1,3-Dich 1,2-Dibr 1,2,4-Tr Hexachl	nzene Petrachloroethane ene Productional Pro	$<1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\$
trans-1,3-Dichlorop 1,1,2-Trichloroetha 2-Hexanone	-	<1 <1 <10	Naphtha 1,2,3-Tri	alene ichlorobenzene	<1 <1

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-03 03/12/20 03/13/20 03/17/20 Water ug/L (ppb)	31120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 0146970 003197-05 031745.D GCMS9 MS	z Infrastructure Solutions 9
Surrogates: 1,2-Dichloroethane Toluene-d8 4-Bromofluorobenz		% Recovery: 91 106 98	Lower Limit: 50 50 50	Upper Limit: 150 150 150	
Compounds:		Concentration ug/L (ppb)	Compou	nds:	Concentration ug/L (ppb)
Dichlorodifluorome Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromet Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ethe trans-1,2-Dichloroeth actione 1,1-Dichloroethane 2,2-Dichloropropan cis-1,2-Dichloroeth Chloroform 2-Butanone (MEK) 1,2-Dichloroethane 1,1-Dichloropropan Carbon tetrachlorie Benzene Trichloroethene 1,2-Dichloropropan Bromodichlorometh Dibromomethane 4-Methyl-2-pentane cis-1,3-Dichloropro Toluene trans-1,3-Dichloropro	hane er (MTBE) ethene ene (EDC) ne e de nane pene	$ \begin{array}{c} <1 \\ <1 \\ <10 \\ <0.2 \\ <1 \\ <1 \\ <1 \\ <1 \\ <50 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <$	1,3-Dich Tetrachl Dibromo 1,2-Dibr Chlorobe Ethylber 1,1,1,2-T m,p-Xyle o-Xylene Isopropy Bromofe n-Propy Bromofe 1,3,5-Tr 1,1,2,2-T 1,2,3-Tr 2-Chloro tert-But 1,2,4-Tr sec-Buty p-Isopro 1,3-Dich 1,2-Dibr 1,2,4-Tr	loropropane loroethene ochloromethane omoethane (EDB) enzene nzene Cetrachloroethane ene orm lbenzene enzene imethylbenzene Cetrachloroethane ichloropropane otoluene ylbenzene imethylbenzene otoluene ylbenzene pyltoluene lorobenzene lorobenzene lorobenzene omo-3-chloropropane orobutadiene	$ \begin{array}{c} <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 $
1,1,2-Trichloroetha 2-Hexanone	-	<1 <10		ichlorobenzene	<1

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Bla Not Applica 03/13/20 03/13/20 Water ug/L (ppb)		Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 0146970 00-613 mb 031337.D GCMS9 VM	t Infrastructure Solutions 19
Surrogates: 1,2-Dichloroethane Toluene-d8 4-Bromofluorobenz		% Recovery: 106 96 98	Lower Limit: 50 50 50	Upper Limit: 150 150 150	
Compounds:		Concentration ug/L (ppb)	Compou	nds:	Concentration ug/L (ppb)
Dichlorodifluorome Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluorometh Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ethe trans-1,2-Dichloroethane 2,2-Dichloropethane 2,2-Dichloropethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropethane 1,2-Dichloropethane 1,2-Dichloropethane 1,2-Dichloropethane 1,2-Dichloropethane 1,2-Dichloropethane 1,2-Dichloropethane 1,2-Dichloropethane 4-Methyl-2-pentane cis-1,3-Dichloropethane	hane rr (MTBE) thene e ene (EDC) ne e le hane pone pene		Tetrachl Dibromo 1,2-Dibr Chlorobe Ethylber 1,1,1,2-T m,p-Xyle o-Xylene Styrene Isopropy Bromofo n-Propy Bromobe 1,3,5-Tr 1,1,2,2-T 1,2,3-Tr 2-Chloro 4-Chloro tert-But 1,2,4-Tr sec-Buty p-Isopro 1,3-Dich 1,2-Dibr 1,2,4-Tr Hexachl	nzene Petrachloroethane ene Pubenzene frm Ibenzene enzene imethylbenzene Vetrachloroethane ichloropropane otoluene toluene ylbenzene pyltoluene lorobenzene lorobenzene omo-3-chloropropane ichlorobenzene orobutadiene	$ \begin{array}{c} <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 $
trans-1,3-Dichlorop 1,1,2-Trichloroetha 2-Hexanone	-	<1 <1 <10	Naphtha 1,2,3-Tri	alene ichlorobenzene	<1 <1

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Bla Not Applica 03/18/20 03/19/20 Water ug/L (ppb)		Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 0146970 00-697 mb 031914.D GCMS4 VM	z Infrastructure Solutions 9
Surrogates: 1,2-Dichloroethane Toluene-d8 4-Bromofluorobenze		% Recovery: 90 100 102	Lower Limit: 57 63 60	Upper Limit: 121 127 133	
Compounds:		Concentration ug/L (ppb)	Compou	nds:	Concentration ug/L (ppb)
Dichlorodifluorome Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluorometh Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ethe trans-1,2-Dichloroethane 2,2-Dichloroethane 2,2-Dichloroethane 2-Butanone (MEK) 1,2-Dichloroethane 1,1,1-Trichloroethan 1,1-Dichloropropen Carbon tetrachlorid Benzene Trichloroethene 1,2-Dichloropropan Bromodichlorometh Dibromomethane 4-Methyl-2-pentano cis-1,3-Dichloropropen	hane er (MTBE) thene e ene (EDC) ne e le le	$\begin{array}{c} <1 \\ <10 \\ <0.2 \\ <1 \\ <1 \\ <1 \\ <50 \\ <1 \\ <1 \\ <5 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1$	Tetrachl Dibromo 1,2-Dibr Chlorobe Ethylber 1,1,1,2-T m,p-Xyle o-Xylene Styrene Isopropy Bromofo n-Propy Bromofo 1,3,5-Tr 1,1,2,2-T 1,2,3-Tr 2-Chloro 4-Chloro tert-But 1,2,4-Tr sec-Buty p-Isopro 1,3-Dich 1,2-Dich 1,2-Dibr 1,2,4-Tr	hzene 'etrachloroethane ene 'lbenzene rm lbenzene enzene imethylbenzene 'etrachloroethane ichloropropane toluene ylbenzene imethylbenzene imethylbenzene imethylbenzene pyltoluene lorobenzene lorobenzene omo-3-chloropropane ichlorobenzene	$ \begin{array}{c} <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 \\ <1 $
Toluene trans-1,3-Dichlorop 1,1,2-Trichloroetha 2-Hexanone		<1 <1 <1 <10	Naphtha	orobutadiene alene achlorobenzene	<1 <1 <1

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-03 03/12/20 03/12/20 03/13/20 Water ug/L (ppb)	31120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-01 1/2 031306.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracen	e-d12	% Recovery: 64 59	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		1.9		
Acenaphthylene		< 0.04		
Acenaphthene		0.044		
Fluorene		< 0.04		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		0.042		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthe		< 0.04		
Benzo(k)fluoranthe		< 0.04		
Indeno(1,2,3-cd)pyr		< 0.04		
Dibenz(a,h)anthrac		< 0.04		
Benzo(g,h,i)perylen	e	< 0.04		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-9- 03/12/20 03/12/20 03/13/20 Water ug/L (ppb)	-031120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-02 1/2 031307.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	e-d12	% Recovery: 62 58	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		2.0		
Acenaphthylene		< 0.04		
Acenaphthene		0.043		
Fluorene		< 0.04		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		0.041		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthe		< 0.04		
Benzo(k)fluoranthe		< 0.04		
Indeno(1,2,3-cd)pyr		< 0.04		
Dibenz(a,h)anthrac		< 0.04		
Benzo(g,h,i)perylen	e	< 0.04		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-06-03 03/12/20 03/12/20 03/13/20 Water ug/L (ppb)	31120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-03 1/2 031308.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	e-d12	% Recovery: 64 72	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		< 0.4		
Acenaphthylene		0.20		
Acenaphthene		0.39		
Fluorene		0.29		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		0.074		
Pyrene		0.27		
Benz(a)anthracene		< 0.04		
Chrysene		0.051		
Benzo(a)pyrene		0.075		
Benzo(b)fluoranthe		0.084		
Benzo(k)fluoranthe		< 0.04		
Indeno(1,2,3-cd)pyr		0.074		
Dibenz(a,h)anthrac		< 0.04		
Benzo(g,h,i)perylen	e	0.073		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-09-03 03/12/20 03/12/20 03/13/20 Water ug/L (ppb)	31120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-04 1/2 031311.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	e-d12	% Recovery: 82 92	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		< 0.4		
Acenaphthylene		0.081		
Acenaphthene		2.8		
Fluorene		0.54		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		0.093		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthe	ne	< 0.04		
Benzo(k)fluoranthe	ne	< 0.04		
Indeno(1,2,3-cd)pyr		< 0.04		
Dibenz(a,h)anthrac	ene	< 0.04		
Benzo(g,h,i)perylen	e	< 0.04		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-03 03/12/20 03/12/20 03/13/20 Water ug/L (ppb)	31120	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 003197-05 1/2 031312.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	e-d12	% Recovery: 80 102	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		< 0.4		
Acenaphthylene		< 0.04		
Acenaphthene		< 0.04		
Fluorene		< 0.04		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		< 0.04		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthe		< 0.04		
Benzo(k)fluoranthe		< 0.04		
Indeno(1,2,3-cd)pyr		< 0.04		
Dibenz(a,h)anthrac		< 0.04		
Benzo(g,h,i)perylen	e	< 0.04		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Bla Not Applica 03/12/20 03/13/20 Water ug/L (ppb)		Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 01469709 00-631 mb 031305.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	e-d12	% Recovery: 89 108	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benz(a)anthracene Chrysene Benzo(a)pyrene Benzo(b)fluoranthe Benzo(k)fluoranthe Indeno(1,2,3,cd)pyr	ne	<0.2 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02		
Indeno(1,2,3-cd)pyr Dibenz(a,h)anthrac Benzo(g,h,i)perylen	ene	<0.02 <0.02 <0.02		

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 003	3197-03 (Matrix	x Spike)					
	D (а. •1	G 1	Percent	Percent	•	DDD
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Gasoline	ug/L (ppb)	1,000	3,900	233 b	196 b	53 - 117	17 b
Laboratory Code: Lab	ooratory Contr	ol Sample	9				
			Percent				
	Reporting	Spike	Recovery	Acceptance	e		
Analyte	Units	Level	LCS	Criteria			
Gasoline	ug/L (ppb)	1,000	104	69-134			

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	003197-03 (Matri	x Spike)						
				Percent	Percent			
	Reporting	Spike	Sample	Recovery	Recovery	Accep	otance	RPD
Analyte	Units	Level	Result	MS	MSD	Crit	ceria	(Limit 20)
Diesel Extended	ug/L (ppb)	2,500	26,000	108 b	1 b	50-	150	196 b
Laboratory Code:	Laboratory Conti	rol Sampl	e					
			Percent	Percent	5			
	Reporting	Spike	Recovery	Recovery	y Accept	ance	RP	D
Analyte	Units	Level	LCS	LCSD	Crite	ria	(Limit	: 20)
Diesel Extended	ug/L (ppb)	2,500	92	108	63-1-	42	16	

Laboratory Code: 002107.02 (Matrix Spiles)

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 003197-03 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<10	110	111	75 - 125	1
Chromium	ug/L (ppb)	20	<10	95	92	75 - 125	3
Copper	ug/L (ppb)	20	149	$74 \mathrm{b}$	90 b	75 - 125	20 b
Lead	ug/L (ppb)	10	<10	98	97	75 - 125	1
Mercury	ug/L (ppb)	5	<10	93	94	75 - 125	1
Nickel	ug/L (ppb)	20	26.8	89	92	75 - 125	3
Zinc	ug/L (ppb)	50	392	149 b	68 b	75 - 125	$75 \mathrm{b}$

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	ug/L (ppb)	10	87	80-120
Chromium	ug/L (ppb)	20	96	80-120
Copper	ug/L (ppb)	20	95	80-120
Lead	ug/L (ppb)	10	92	80-120
Mercury	ug/L (ppb)	5	91	80-120
Nickel	ug/L (ppb)	20	97	80-120
Zinc	ug/L (ppb)	50	90	80-120

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 003197-03 (Matrix Spike)

		а ·1	a 1	Percent	Percent	A ,	מתת
	Reporting	Spike				Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	<1	91	87	55-137	4
Chloromethane	ug/L (ppb)	50	<10	98	94	57-129	4
Vinyl chloride	ug/L (ppb)	50	< 0.2	102	99	61-139	3
Bromomethane Chloroethane	ug/L (ppb) ug/L (ppb)	50 50	<1 <1	94 99	91 96	20-265 55-149	3
Trichlorofluoromethane	ug/L (ppb)	50 50	<1	100	98 97	65-137	3
Acetone	ug/L (ppb)	250	<50	135	122	48-149	3 10
1,1-Dichloroethene	ug/L (ppb)	250 50	<1	102	99	71-123	3
Hexane	ug/L (ppb)	50 50	<1	95	90	44-139	5
Methylene chloride	ug/L (ppb)	50	<5	96	93	61-126	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	124	118	68-125	5
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	101	99	72-122	2
1,1-Dichloroethane	ug/L (ppb)	50	<1	101	101	72-122	4
2,2-Dichloropropane	ug/L (ppb)	50	<1	76	74	48-157	3
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	106	103	63-126	3
Chloroform	ug/L (ppb)	50	<1	105	102	77-117	3
2-Butanone (MEK)	ug/L (ppb)	250	<10	135	128	70-135	5
1.2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	107	104	70-119	3
1.1.1-Trichloroethane	ug/L (ppb)	50	<1	101	99	75-121	2
1,1-Dichloropropene	ug/L (ppb)	50	<1	107	105	67-121	2
Carbon tetrachloride	ug/L (ppb)	50	<1	99	96	70-132	3
Benzene	ug/L (ppb)	50	< 0.35	101	98	75-114	3
Trichloroethene	ug/L (ppb)	50	<1	105	103	73-122	2
1,2-Dichloropropane	ug/L (ppb)	50	<1	105	101	80-111	4
Bromodichloromethane	ug/L (ppb)	50	<1	105	100	78-117	5
Dibromomethane	ug/L (ppb)	50	<1	113	109	73-125	4
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	156 vo	148 vo	79-140	5
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	102	98	76-120	4
Toluene	ug/L (ppb)	50	<1	99	97	73-117	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	104	100	75-122	4
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	119 vo	114	81-116	4
2-Hexanone	ug/L (ppb)	250	<10	144 vo	136 vo	74-127	6
1,3-Dichloropropane	ug/L (ppb)	50	<1	117 vo	112	80-113	4
Tetrachloroethene	ug/L (ppb)	50	<1	93	93	40-155	0
Dibromochloromethane	ug/L (ppb)	50	<1	109	105	69-129	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	119	118	79-120	1
Chlorobenzene	ug/L (ppb)	50	<1	103	101	75-115	2
Ethylbenzene	ug/L (ppb)	50	6.6	90	88	66-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	107	106	76-130	1
m,p-Xylene	ug/L (ppb)	100	17	91	89	63-128	2
o-Xylene	ug/L (ppb)	50	3.1	103	101	64-129	2
Styrene	ug/L (ppb)	50	<1	106	105	56-142	$\frac{1}{2}$
Isopropylbenzene	ug/L (ppb)	50 50	3.7 <1	$106 \\ 116$	104 108	74-122	2 7
Bromoform	ug/L (ppb)		<1 5.0	98	96	49-138 65-129	2
n-Propylbenzene Bromobenzene	ug/L (ppb)	50 50	5.0 <1	98 104	96 100	65-129 70-121	2 4
	ug/L (ppb) ug/L (ppb)	50 50	<1	104 105	100	70-121 60-138	4
1,3,5-Trimethylbenzene 1,1,2,2-Tetrachloroethane	ug/L (ppb)	50 50	<1	164 vo	162 163 vo	77-120	5 1
1,2,3-Trichloropropane		50 50	<1	134 vo	103 V0 129 vo	62-125	4
2-Chlorotoluene	ug/L (ppb) ug/L (ppb)	50 50	<1	100	97	40-159	4 3
4-Chlorotoluene	ug/L (ppb)	50 50	<1	100	98	76-122	2
tert-Butylbenzene	ug/L (ppb)	50 50	<1	113	111	74-125	2
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	102	100	59-136	2
sec-Butylbenzene	ug/L (ppb)	50	<1	102	100	69-127	5
p-Isopropyltoluene	ug/L (ppb)	50 50	<1	107	102	64-132	3
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	94	93	77-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	98	95	75-110	3
1,2-Dichlorobenzene	ug/L (ppb)	50 50	<1	102	100	70-120	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	141 vo	139 vo	69-129	1
1.2.4-Trichlorobenzene	ug/L (ppb)	50	<10	105	105	66-123	0
Hexachlorobutadiene	ug/L (ppb)	50 50	<1	88	84	53-136	5
Naphthalene	ug/L (ppb)	50 50	<1	158 vo	04 156 vo	60-145	5 1
1 upitulation	ag in (bbn)	00	-1	100 10	100 10	00 1 10	2

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Percent	Percent		
Dehlsondtharonsehne upL (pp) 50 114 108 50.17 5 Chloronethne upL (pp) 50 114 133 62.130 3 Virgi chloride upL (pp) 50 127 119 66.143 2 Chloronethne upL (pp) 50 122 119 65.138 2 Actions upL (pp) 50 122 110 65.138 2 Actions upL (pp) 50 122 110 65.132 1 Mehly Lopp 50 106 109 100 65.122 1 Mehly Lopp 50 106 109 102 72.121 1 Mehly Lopp 50 109 100 108 70.122 1 1.1 Debloroethne upL (pp) 50 119 101 71.19 0 2.1 Debloroethne upL (pp) 50 118 113 71.19 0 2.2 Debloroethne upL (pp)		Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Dickhordifusoreschane ugL (pp) 50 114 108 50.17 5 Chloromethane ugL (pp) 50 116 113 62.130 3 Vary (horder ugL (pp) 50 127 119 66.148 2 Trichlorodhuromethane ugL (pp) 50 122 119 66.148 2 Actance ugL (pp) 50 122 119 66.148 2 1, Dichlorothene ugL (pp) 50 122 10 66.148 2 1, Dichlorothene ugL (pp) 50 109 109 72.121 1 Mathyl behard ther (MTBE) ugL (pp) 50 109 108 70.122 1 1, Dichlorothene ugL (pp) 50 119 117 76.118 2 1, Dichlorothene ugL (pp) 50 118 113 71.19 0 2, Dichlorothene ugL (pp) 50 118 113 119 0 1,	Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Varyle Blordek upl. (ppb) 50 124 120 70.288 3 Charowschnane upl. (ppb) 50 127 111 60.148 5 Charowschnane upl. (ppb) 50 122 110 66.168 2 Acetorn upl. (ppb) 50 121 120 7.212 1 Heane upl. (ppb) 50 101 100 7.122 1 Heane upl. (ppb) 50 112 112 7.719 0 Labelacoschnane upl. (ppb) 50 112 114 62.141 6 Labelacoschnane upl. (ppb) 50 112 114 62.141 6 Labelacoschnane upl. (ppb) 50 87 88 75.116 1 Labelacoschnane upl. (ppb) 50 105 75.186 3 Labelacoschnane upl. (ppb) 50 105 75.166 1 Labelacoschnane upl. (ppb) 50							5
Eximane (a) a) b) 50 117 111 60-143 5 Chlerothane (a) (b) 50 122 119 66-148 2 Trichlowithene (a) (b) 50 122 119 66-148 2 Hexane (a) (a) (b) 50 110 109 51.153 1 Methyle chloride (a) (a) (b) 50 108 109 63-122 1 Hexane (a) (a) (b) 110 108 70-122 1 Hexane (a) (a) (b) 111 111 71-13 0 2.2-bichhorophylene (a) (a) (b) 111 71-13 0 2.2-bichhorophylene (a) (a) (b) 108 108 78-117 0 2.2-bichhorophylene (a) (a) (b) 101 78-118 11 2.2-bichhorophylene (a)							
Chlorodhane up/L ipph 50 122 119 06-149 2 Aceton up/L ipph 50 101 44-145 2 Aceton up/L ipph 50 101 109 65-132 1 Methylene chloride up/L ipph 50 108 109 63-132 1 Methylene chloride up/L ipph 50 108 108 70-118 2 Methylene chloride up/L ipph 50 113 112 77-119 6 1 Dichloresthane up/L ipph 50 114 114 77-119 6 1 Dichloresthane up/L ipph 50 114 114 77-119 0 2-Bithoresthane up/L ipph 50 105 75-116 0 1-1.1-Fichloresthane up/L ipph 50 105 75-116 0 1-1.1-Fichloresthane up/L ipph							
Trichoroluconsthane ug/L (pb) 50 122 19 65-188 2 1.1-Dichlorochene ug/L (pb) 50 121 120 72-121 1 Meane ug/L (pb) 50 121 120 72-121 1 Methyl brayl cher (MTEB) ug/L (pb) 50 119 108 70-122 1 Methyl brayl cher (MTEB) ug/L (pb) 50 112 112 77-118 0 2.2-Dichloropropane ug/L (pb) 50 121 14 62-14.1 6 1.2-Dichloropropane ug/L (pb) 50 121 114 62-14.1 6 2.2-Dichloropropane ug/L (pb) 50 120 18 80 84.150 1 1.2-Dichloropropane ug/L (pb) 50 105 105 78.18 71.18 0 1.2-Dichloropropane ug/L (pb) 50 105 105 72.19 0 1.2-Dichloropropane ug/L (pb) 50 106 72.1							
Acstance ug/L (pph) 250 99 101 44-145 2 Hexance ug/L (pph) 50 110 100 61.153 1 Hexance ug/L (pph) 50 110 100 61.153 1 Hexance ug/L (pph) 50 119 100 61.153 1 Trans L 2-Dichloreschane ug/L (pph) 50 112 112 67.16 0 2.3. Dichloreschane ug/L (pph) 50 121 114 62.14 0 2.3. Dichloreschane ug/L (pph) 50 112 113 76.118 0 2.3. Dichloreschane ug/L (pph) 50 118 115 72.128 3 Benzance (MER) ug/L (pph) 50 118 115 72.128 3 Direscenter ug/L (pph) 50 100 100 72.118 10 1.1.1-Trichloreschane ug/L (pph) 50 100 100 72.118 11 <							
1.1-Dichloredhene ug/L (ph) 50 121 120 72-121 1 Methylene chloride ug/L (ph) 50 108 109 63-132 1 Methylene chloride ug/L (ph) 50 108 109 63-132 1 Methylene chloride ug/L (ph) 50 112 112 71-19 0 2.Dichlorogropane ug/L (ph) 50 112 114 62-14 66 Chloroform ug/L (ph) 50 114 114 72-19 0 2.Bichlorogropane ug/L (ph) 50 106 108 78-117 0 2.Bichlorogropane ug/L (ph) 50 105 155 72-18 3 1.1.Dichlorogropane ug/L (ph) 50 105 105 72-18 3 1.1.Dichlorogropane ug/L (ph) 50 106 105 72-18 3 1.1.Dichlorogropane ug/L (ph) 50 96 99 76-123 3 1.1.Dichlorogropane ug/L (ph) 50 96 97 74-124		ug/L (ppb)					
Hearno up/L (ppb) 50 110 109 51.133 1 Methylenchonde up/L (ppb) 60 109 108 70.122 1 Methylenchhoredbrane up/L (ppb) 60 119 vv) 117 76.18 3 1.2.Dhichoredbrane up/L (ppb) 50 121 114 76.19 0 1.2.Dhichoredbrane up/L (ppb) 50 121 114 76.19 0 2.3.Dhichoredbrane up/L (ppb) 50 120 188 78.110 0 2.3.Dhichoredbrane up/L (ppb) 50 130 116 85.100 1 1.1.1 Trichichoredbrane up/L (ppb) 50 118 115 73.161 0 1.2.Dichkoredbrane up/L (ppb) 50 100 100 73.162 2 Carbon tetrachioride up/L (ppb) 50 100 100 73.19 0 1.2.Dichkoredbrane up/L (ppb) 50 100 104 76.128							
Methylene chloride ug/L (pph) 50 108 109 63-132 1 trams 1.2 Dichlorecthane ug/L (pph) 50 119 vo 117 7-118 2 1.1 Dichlorecthane ug/L (pph) 50 119 vo 117 7-118 2 2.2 Dichlorecthane ug/L (pph) 50 114 114 64-119 0 2.4 Dichlorecthane ug/L (pph) 50 108 108 7-116 1 2.4 Dichlorecthane ug/L (pph) 50 187 88 7-16 1 1.1 Dichloreprosente (DDC) ug/L (pph) 50 105 105 7-19 0 Carbon tetrachloride ug/L (pph) 50 106 100 7-19 0 Dichloreprosente ug/L (pph) 50 105 105 7-119 0 1.2-Dichlorecthane ug/L (pph) 50 96 99 7-120 0 Carbon tetrachloride ug/L (pph) 50 96 91 7-121							
Methyl barbyl ether (MTBE) upf. (ppb) 50 109 108 70-122 1 1.1-Dichhorosthane upf. (ppb) 50 112 112 77-118 2 1.1-Dichhorosthane upf. (ppb) 50 112 114 62.14 66 2.Dichhorosthane upf. (ppb) 50 114 114 77-119 0 c.a. J.2.Dichhorosthane upf. (ppb) 50 114 114 78-119 0 1.2.Dichhorosthane upf. (ppb) 50 87 88 75-116 1 1.1.Dichhorosthane upf. (ppb) 50 116 115 72-128 3 Benzme upf. (ppb) 50 105 105 75-116 0 1.2.Dichhorostopane upf. (ppb) 50 100 100 75-116 1 1.2.Dichorostopane upf. (ppb) 50 95 97 76-128 2 1.1.2.Trichorosthane upf. (ppb) 50 95 97 76-128 <							
trans-1.2-Dichlorosthane ug/L (ppb) 50 119 vo 117 76-118 2 1.1-Dichlorosthane ug/L (ppb) 50 112 114 67-6149 6 2.3-Dichlorosthene ug/L (ppb) 50 121 114 67-119 0 2.3-Dichlorosthene ug/L (ppb) 50 108 108 78-117 0 2.3-Dichlorosthene ug/L (ppb) 50 108 108 78-118 1 1.1-Dichlorosthene ug/L (ppb) 50 1105 105 75-116 0 Carbon tetrachloride ug/L (ppb) 50 105 105 79-121 0 Benzzene ug/L (ppb) 50 105 105 79-121 2 Dibrorosthene ug/L (ppb) 50 96 99 76-120 3 Dibrorosthene ug/L (ppb) 50 98 91 79-121 2 Addropopopane ug/L (ppb) 50 93 97 78-120 4							
1.1-Dickboresthane ug/L (ppb) 50 112 112 77-119 0 2.3-Dickboryopane ug/L (ppb) 50 121 114 76-119 0 Chbordorm ug/L (ppb) 50 114 114 76-119 0 2-Bitchoryopane ug/L (ppb) 50 118 114 76-119 0 2-Bitchoryopane ug/L (ppb) 50 105 78-119 0 0 1.1-Dickboryopane ug/L (ppb) 50 105 105 78-119 0 Carbon tetrahishoride ug/L (ppb) 50 100 100 72-128 3 Benzene ug/L (ppb) 50 105 105 78-119 0 1.2-Dickboryopane ug/L (ppb) 50 100 100 74-121 0 1.2-Dickboryopane ug/L (ppb) 50 105 76-163 11 11 1.2-Dickboryopane ug/L (ppb) 50 95 97 76-128 2 2 1.2-Dickboryopane ug/L (ppb) 50 92 93 76-							
2.2.Dichloropropaneug/l (ppb)5012111462.14167.19Charodramug/l (ppb)5010810878.1170Charodramug/l (ppb)5010810878.11702.Butance (MK)ug/l (ppb)5010810878.11811.2.Dichloroptroataneug/l (ppb)5010610675.11611.2.Dichloroptroataneug/l (ppb)5010510575.1160Carbon tetrachlorideug/l (ppb)5010510575.1160Carbon tetrachlorideug/l (ppb)5010510676.1203Dibromomethaneug/l (ppb)5010510676.1203Dibromomethaneug/l (ppb)50969976.1203Dibromomethaneug/l (ppb)50989179.1212Carbon tetrachlorideug/l (ppb)50989776.1381Dibromomethaneug/l (pbb)50939776.1381Li_1.2.Prichloropropeneug/l (pbb)50939441.1111Li_2.Prichloropropeneug/l (pbb)50939481.1111Li_2.Prichloropropeneug/l (pbb)50939481.1111Li_2.Prichloropropeneug/l (pbb)50939481.1111Li_2.Prichloropropeneug/l (pbb)50939481.1111							
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		ug/L (ppb)					
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Isopropylbenzene ug/L (ppb) 50 116 114 78-118 2 Bromoform ug/L (ppb) 50 103 102 40-161 1 n-Propylbenzene ug/L (ppb) 50 107 107 81-115 0 Bromobenzene ug/L (ppb) 50 100 101 80-113 1 1,3,5-Trimethylbenzene ug/L (ppb) 50 92 92 79-118 0 1,2,3-Trichloropopane ug/L (ppb) 50 94 95 74-116 1 2-Chlorotoluene ug/L (ppb) 50 107 107 79-112 0 4-Chlorotoluene ug/L (ppb) 50 105 104 80-116 1 2-Chlorotoluene ug/L (ppb) 50 107 107 79-112 0 1,2,4-Trimethylbenzene ug/L (ppb) 50 108 104 80-116 1 2.4-Trimethylbenzene ug/L (ppb) 50 109 109 81-119 0 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
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Naphthalene ug/L (ppb) 50 100 99 72-131 1							
1,2,3-1richiorobenzene ug/L (ppb) 50 99 98 74-122 1							
	1,2,3-Trichlorobenzene	ug/L (ppb)	ðÜ	99	98	74-122	1

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 003285-01 (Duplicate)

	Reporting	Sample	Duplicate	RPD
Analyte	Units	Result	Result	(Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	<1	<1	nm
Chloromethane	ug/L (ppb)	<2	<2	nm
Vinyl chloride	ug/L (ppb)	< 0.2	< 0.2	nm
Bromomethane	ug/L (ppb)	<1	<1	nm
Chloroethane	ug/L (ppb)	< 0.2	< 0.2	nm
Trichlorofluoromethane	ug/L (ppb)	< 0.2	<0.2	nm
Acetone	ug/L (ppb)	<50	<50	nm
1.1-Dichloroethene	ug/L (ppb)	<0.2	<0.2	nm
Hexane	ug/L (ppb)	<1	<0.2	nm
Methylene chloride	ug/L (ppb)	<5	<5	nm
		<1	<1	
Methyl t-butyl ether (MTBE)	ug/L (ppb)	-	-	nm
trans-1,2-Dichloroethene	ug/L (ppb)	<0.2	<0.2	nm
1,1-Dichloroethane	ug/L (ppb)	< 0.2	< 0.2	nm
2,2-Dichloropropane	ug/L (ppb)	< 0.2	< 0.2	nm
cis-1,2-Dichloroethene	ug/L (ppb)	< 0.2	< 0.2	nm
Chloroform	ug/L (ppb)	< 0.2	< 0.2	nm
2-Butanone (MEK)	ug/L (ppb)	<10	<10	nm
1,2-Dichloroethane (EDC)	ug/L (ppb)	<1	<1	nm
1,1,1-Trichloroethane	ug/L (ppb)	< 0.2	< 0.2	nm
1,1-Dichloropropene	ug/L (ppb)	< 0.2	< 0.2	nm
Carbon tetrachloride	ug/L (ppb)	< 0.2	< 0.2	nm
Benzene	ug/L (ppb)	< 0.2	< 0.2	nm
Trichloroethene	ug/L (ppb)	< 0.2	<0.2	nm
1,2-Dichloropropane	ug/L (ppb)	< 0.2	<0.2	nm
Bromodichloromethane	ug/L (ppb)	<0.2	<0.2	nm
Dibromomethane	ug/L (ppb)	<1	<1	nm
4-Methyl-2-pentanone		<10	<10	nm
	ug/L (ppb)	<10	<10	
cis-1,3-Dichloropropene	ug/L (ppb)			nm
Toluene	ug/L (ppb)	< 0.2	< 0.2	nm
trans-1,3-Dichloropropene	ug/L (ppb)	<1	<1	nm
1,1,2-Trichloroethane	ug/L (ppb)	< 0.2	< 0.2	nm
2-Hexanone	ug/L (ppb)	<10	<10	nm
1,3-Dichloropropane	ug/L (ppb)	< 0.2	< 0.2	nm
Tetrachloroethene	ug/L (ppb)	< 0.2	< 0.2	nm
Dibromochloromethane	ug/L (ppb)	< 0.2	< 0.2	nm
1.2-Dibromoethane (EDB)	ug/L (ppb)	<1	<1	nm
Chlorobenzene	ug/L (ppb)	< 0.2	< 0.2	nm
Ethylbenzene	ug/L (ppb)	< 0.2	< 0.2	nm
1.1.1.2-Tetrachloroethane	ug/L (ppb)	<0.2	<0.2	nm
m,p-Xylene	ug/L (ppb)	<0.2	<0.4	nm
o-Xylene	ug/L (ppb)	<0.4	<0.4	nm
Styrene	ug/L (ppb)	<0.2	<0.2	nm
Styrene Isopropylbenzene		<1	<1	
	ug/L (ppb)			nm
Bromoform	ug/L (ppb)	<1	<1	nm
n-Propylbenzene	ug/L (ppb)	<1	<1	nm
Bromobenzene	ug/L (ppb)	<1	<1	nm
1,3,5-Trimethylbenzene	ug/L (ppb)	<1	<1	nm
1,1,2,2-Tetrachloroethane	ug/L (ppb)	< 0.2	< 0.2	nm
1,2,3-Trichloropropane	ug/L (ppb)	< 0.03	< 0.03	nm
2-Chlorotoluene	ug/L (ppb)	< 0.2	< 0.2	nm
4-Chlorotoluene	ug/L (ppb)	< 0.2	< 0.2	nm
tert-Butylbenzene	ug/L (ppb)	<1	<1	nm
1,2,4-Trimethylbenzene	ug/L (ppb)	< 0.2	< 0.2	nm
sec-Butylbenzene	ug/L (ppb)	<1	<1	nm
p-Isopropyltoluene	ug/L (ppb)	<1	<1	nm
1,3-Dichlorobenzene	ug/L (ppb)	<0.2	0.26	nm
1,4-Dichlorobenzene	ug/L (ppb)	<0.2	0.27	nm
1,2-Dichlorobenzene	ug/L (ppb)	< 0.2	0.23	nm
1,2-Dibromo-3-chloropropane	ug/L (ppb)	<0.8	<0.8	nm
1,2,4-Trichlorobenzene	ug/L (ppb)	<1	<1	nm
Hexachlorobutadiene	ug/L (ppb)	< 0.2	0.41	nm
Naphthalene	ug/L (ppb)	<1	<1	nm
1,2,3-Trichlorobenzene	ug/L (ppb)	< 0.2	0.59	nm

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Laboratory Coue. Labora	<i>v</i> 1		Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	104	109	25-158	5
Chloromethane	ug/L (ppb)	50	110	122	45-156	10
Vinyl chloride	ug/L (ppb)	50	117	125	50-154	7
Bromomethane	ug/L (ppb)	50	120	128	55-143	6
Chloroethane	ug/L (ppb)	50	111	114	58-146	3
Trichlorofluoromethane	ug/L (ppb)	$250 \\ 250$	106	115 87	50-150	8 7
Acetone	ug/L (ppb)	250 50	93 109	87 118	53-131 67-136	7 8
1,1-Dichloroethene	ug/L (ppb)	50 50		91	57-135	8
Hexane Methylene chloride	ug/L (ppb) ug/L (ppb)	50 50	88 102	91 93	39-148	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	102	89	64-147	13
trans-1,2-Dichloroethene	ug/L (ppb)	50	97	89	68-128	9
1.1-Dichloroethane	ug/L (ppb)	50	100	89	79-121	12
2,2-Dichloropropane	ug/L (ppb)	50	103	90	55-143	13
cis-1.2-Dichloroethene	ug/L (ppb)	50	94	88	80-123	7
Chloroform	ug/L (ppb)	50	97	90	80-121	7
2-Butanone (MEK)	ug/L (ppb)	250	87	79	57 - 149	10
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	84	81	73-132	4
1,1,1-Trichloroethane	ug/L (ppb)	50	99	92	81-125	7
1,1-Dichloropropene	ug/L (ppb)	50	90	89	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	106	99	75-158	7
Benzene	ug/L (ppb)	50	90	86	69-134	5
Trichloroethene	ug/L (ppb)	50	88	87	79-113	1
1,2-Dichloropropane	ug/L (ppb)	50	91	88	77-123	3
Bromodichloromethane	ug/L (ppb)	50	89	98	81-133	10
Dibromomethane	ug/L (ppb)	50	89	90	82-125	1
4-Methyl-2-pentanone	ug/L (ppb)	250	89	93	65-138	4
cis-1,3-Dichloropropene	ug/L (ppb)	50	87	99	82-132	13 10
Toluene	ug/L (ppb)	50 50	98 100	89	72-122	10 2
trans-1,3-Dichloropropene 1,1,2-Trichloroethane	ug/L (ppb) ug/L (ppb)	50 50	100 103	102 99	80-136 75-124	2 4
2-Hexanone	ug/L (ppb)	250	103	94	60-136	9
1,3-Dichloropropane	ug/L (ppb)	50	93	93	76-126	0
Tetrachloroethene	ug/L (ppb)	50	99	94	76-121	5
Dibromochloromethane	ug/L (ppb)	50	117	113	84-133	3
1.2-Dibromoethane (EDB)	ug/L (ppb)	50	96	100	82-115	4
Chlorobenzene	ug/L (ppb)	50	93	93	83-114	0
Ethylbenzene	ug/L (ppb)	50	93	92	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	109	102	84-127	7
m,p-Xylene	ug/L (ppb)	100	94	92	81-112	2
o-Xylene	ug/L (ppb)	50	95	92	81-121	3
Styrene	ug/L (ppb)	50	97	98	84-119	1
Isopropylbenzene	ug/L (ppb)	50	98	93	80-117	5
Bromoform	ug/L (ppb)	50	115	117	74-136	2
n-Propylbenzene	ug/L (ppb)	50	89	91	74-126	2
Bromobenzene	ug/L (ppb)	50 50	94 94	99 95	80-121 78-123	5 1
1,3,5-Trimethylbenzene	ug/L (ppb)	50 50	94 97	95 101	66-126	4
1,1,2,2-Tetrachloroethane 1.2.3-Trichloropropane	ug/L (ppb) ug/L (ppb)	50 50	97 90	94	67-126	4
2-Chlorotoluene	ug/L (ppb)	50 50	89	94 91	77-127	2
4-Chlorotoluene	ug/L (ppb)	50	89	93	78-128	4
tert-Butylbenzene	ug/L (ppb)	50	95	98	80-123	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	95	93	79-122	2
sec-Butylbenzene	ug/L (ppb)	50	95	95	80-116	0
p-Isopropyltoluene	ug/L (ppb)	50	94	94	81-123	Ő
1,3-Dichlorobenzene	ug/L (ppb)	50	95	98	83-113	3
1,4-Dichlorobenzene	ug/L (ppb)	50	95	96	83-107	1
1,2-Dichlorobenzene	ug/L (ppb)	50	99	96	84-112	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	112	105	57-141	6
1,2,4-Trichlorobenzene	ug/L (ppb)	50	100	97	72-130	3
Hexachlorobutadiene	ug/L (ppb)	50	94	91	53-141	3
Naphthalene	ug/L (ppb)	50	103	101	64-133	2
1,2,3-Trichlorobenzene	ug/L (ppb)	50	97	98	65-136	1

ENVIRONMENTAL CHEMISTS

Date of Report: 03/23/20 Date Received: 03/12/20 Project: Kelly Moore 01469709, F&BI 003197

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270E SIM

Laboratory Code: Laboratory Control Sample

Laboratory Code. Laborato		npie	Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Naphthalene	ug/L (ppb)	1	74	77	57 - 114	4
Acenaphthylene	ug/L (ppb)	1	81	81	65 - 119	0
Acenaphthene	ug/L (ppb)	1	77	80	66-118	4
Fluorene	ug/L (ppb)	1	82	87	64 - 125	6
Phenanthrene	ug/L (ppb)	1	81	84	67 - 120	4
Anthracene	ug/L (ppb)	1	85	90	65 - 122	6
Fluoranthene	ug/L (ppb)	1	85	88	65 - 127	3
Pyrene	ug/L (ppb)	1	82	85	62-130	4
Benz(a)anthracene	ug/L (ppb)	1	89	92	60-118	3
Chrysene	ug/L (ppb)	1	87	90	66 - 125	3
Benzo(b)fluoranthene	ug/L (ppb)	1	80	82	55 - 135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	83	86	62 - 125	4
Benzo(a)pyrene	ug/L (ppb)	1	81	84	58 - 127	4
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	79	84	36 - 142	6
Dibenz(a,h)anthracene	ug/L (ppb)	1	83	91	37 - 133	9
Benzo(g,h,i)perylene	ug/L (ppb)	1	74	77	34 - 135	4

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Friedman & Bruya, Inc.Relinquished3012 16th Avenue WestReceived by:Seattle, WA 98119-2029RelinquishedPh. (206) 285-8282Received by:	1/111-10-03 1120 0 Tro Blanks 0	1 1 1 1 1	KMW-04-03/120 0	Sample ID	City, State, ZIP SocHk, WA YOR Phone los - 340-7223 Email hos, Kerne Owood pl. com		Report To Lucas Kerner
SIGNATURE Relinquished by: Received by: Relinquished by: Received by: Received by:	05 A B C A B O	04 A-I 12.25	01 A-I 03/11/20 14.05	Lab ID Date Time Sampled Sampled	151 05 Kerner Wood pk com Projec	Ste #GOD Ldb- 1 REMÁRKS	
PRINT NAME Lucy Lerne UNAN PARM		2 7 K	5 Water 9 X X	D. Sample Type Jars NWTPH-Dx NWTPH-Gx	Project specific RLs? - Yes / No	TRKS MOOR	SAMPLE CHAIN OF CUSTODY SAMPLERS (signature) Las here LM
		5 × <	x x x x X X	BTEX EPA 8021 NWTPH-HCID VOCs EPA 8260 PAHs EPA 8270 PCBs EPA 8082 Toki Mais	ANALYSES REQUESTED	CI469701	ME 03/12
$\begin{array}{c c} company & DATE & TIME \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ $		USW/SW		Notes	ED	Rush charges authorized by: SAMPLE DISPOSAL	20 Page # VW5 AL2 TURNAROUND TIME TURNAROUND TIME TURNAROUND TIME

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

February 18, 2019

Crystal Thimsen, Project Manager Wood Environment & Infrastructure Solutions, Inc. One Union Square 600 University Street, Suite 600 Seattle, WA 98101

Dear Ms Thimsen:

Included are the results from the testing of material submitted on February 8, 2019 from the Kelly Moore 14697009, F&BI 902134 project. There are 45 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures WEI0218R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 8, 2019 by Friedman & Bruya, Inc. from the Wood Environment & Infrastructure Solutions Kelly Moore 14697009, F&BI 902134 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Wood Environment & Infrastructure Solutions
902134 -01	KMW-02R-020819
902134 -02	KMW-03R-020819
902134 -03	KMW-04-020719
902134 -04	KMW-06-020719
902134 -05	KMW-08-020819
902134 -06	KMW-09-020719
902134 -07	KMW-10-020719
902134 -08	KMW-10-9-020719
902134 -09	KMW-7-020819
902134 -10	Trip Blanks

A 6020B internal standard failed the acceptance criteria for samples KMW-10-020719 and KMW-10-9-020719. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

The 8270D matrix spike and matrix spike duplicate failed the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable.

1,1-Dichloroethane in the 8260C laboratory control sample exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/19 Date Received: 02/08/19 Project: Kelly Moore 14697009, F&BI 902134 Date Extracted: 02/12/19 Date Analyzed: 02/12/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

~

<u>Sample ID</u> Laboratory ID	Gasoline Range	Surrogate (<u>% Recovery)</u> (Limit 51-134)
KMW-02R-020819 902134-01	<100	92
KMW-03R-020819 902134-02	140	97
KMW-04-020719 902134-03 1/10	31,000	108
KMW-06-020719 902134-04	2,200	ip
KMW-08-020819 902134-05	120	96
KMW-09-020719 902134-06	450	107
KMW-10-020719 902134-07	200	109
KMW-10-9-020719 902134-08	210	109
KMW-7-020819 902134-09	<100	94
Method Blank ^{09-321 MB}	<100	103

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/19 Date Received: 02/08/19 Project: Kelly Moore 14697009, F&BI 902134 Date Extracted: 02/12/19 Date Analyzed: 02/12/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	Diesel Range (C10-C25)	Motor Oil Range (C25-C36)	Surrogate <u>(% Recovery)</u> (Limit 47-140)
KMW-02R-020819 902134-01 1/1.2	<60	<300	95
KMW-03R-020819 902134-02 1/1.2	1,700 x	<300	110
KMW-04-020719 902134-03 1/1.2	2,600 x	<300	64
KMW-06-020719 902134-04 1/1.2	19,000 x	790 x	63
KMW-08-020819 902134-05 1/1.2	440 x	<300	102
KMW-09-020719 902134-06 1/1.2	3,100 x	<300	64
KMW-10-020719 902134-07 1/1.3	970 x	<320	75
KMW-10-9-020719 902134-08 1/1.2	1,300 x	<300	105
KMW-7-020819 902134-09 1/1.2	<60	<300	106
Method Blank 09-358 MB	<60	<300	100

ENVIRONMENTAL CHEMISTS

5		1 5		
Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-02R-0 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	020819	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-01 1/2 021311.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene Compounds:	-d12	% Recovery: 99 112 Concentration ug/L (ppb)	Lower Limit: 31 25	Upper Limit: 160 165
		< 0.4		
Naphthalene				
Acenaphthylene		< 0.04		
Acenaphthene		< 0.04		
Fluorene		< 0.04		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		< 0.04		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen	e	< 0.04		
Benzo(k)fluoranther		< 0.04		
Indeno(1,2,3-cd)pyre		< 0.04		
Dibenz(a,h)anthrace		< 0.04		
Benzo(g,h,i)perylene		< 0.04		
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ENVIRONMENTAL CHEMISTS

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Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-03R-0 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	020819	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-02 1/2 021312.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene Compounds:	-d12	% Recovery: 97 111 Concentration ug/L (ppb)	Lower Limit: 31 25	Upper Limit: 160 165
Compounds.		ug/r (hhn)		
Naphthalene		< 0.4		
Acenaphthylene		1.7		
Acenaphthene		0.14		
Fluorene		0.099		
Phenanthrene		0.041		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		< 0.04		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen	e	< 0.04		
Benzo(k)fluoranther	ie	< 0.04		
Indeno(1,2,3-cd)pyre	ene	< 0.04		
Dibenz(a,h)anthrace	ene	< 0.04		
Benzo(g,h,i)perylene	.	< 0.04		

ENVIRONMENTAL CHEMISTS

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Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-02 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-03 1/2 021313.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	-d12	% Recovery: 80 80	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		3.3		
Acenaphthylene		< 0.04		
Acenaphthene		0.069		
Fluorene		< 0.04		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		< 0.04		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen	e	< 0.04		
Benzo(k)fluoranther		< 0.04		
Indeno(1,2,3-cd)pyre		< 0.04		
Dibenz(a,h)anthrace		< 0.04		
Benzo(g,h,i)perylene		< 0.04		

ENVIRONMENTAL CHEMISTS

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Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-06-020 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-04 1/2 021314.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	-d12	% Recovery: 83 87	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		< 0.4		
Acenaphthylene		28 ve		
Acenaphthene		0.71		
Fluorene		0.36		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		0.11		
Pyrene		0.15		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen	e	< 0.04		
Benzo(k)fluoranther		< 0.04		
Indeno(1,2,3-cd)pyre		< 0.04		
Dibenz(a,h)anthrace		< 0.04		
Benzo(g,h,i)perylene		< 0.04		

ENVIRONMENTAL CHEMISTS

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Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-06-02 02/08/19 02/12/19 02/14/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-04 1/100 021411.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	-d12	% Recovery: 80 d 74 d	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		<20		
Acenaphthylene		38		
Acenaphthene		<2		
Fluorene		<2		
Phenanthrene		<2		
Anthracene		<2		
Fluoranthene		<2		
Pyrene		<2		
Benz(a)anthracene		<2		
Chrysene		<2		
Benzo(a)pyrene		<2		
Benzo(b)fluoranthen		<2		
Benzo(k)fluoranther		<2		
Indeno(1,2,3-cd)pyre		<2		
Dibenz(a,h)anthrace		<2		
Benzo(g,h,i)perylene)	<2		

ENVIRONMENTAL CHEMISTS

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Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-08-02 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	0819	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-05 1/2 021317.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene-	-d12	% Recovery: 95 109	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		< 0.4		
Acenaphthylene		< 0.04		
Acenaphthene		0.15		
Fluorene		0.26		
Phenanthrene		< 0.04		
Anthracene		0.095		
Fluoranthene		0.14		
Pyrene		0.20		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen	e	< 0.04		
Benzo(k)fluoranther	ie	< 0.04		
Indeno(1,2,3-cd)pyre		< 0.04		
Dibenz(a,h)anthrace		< 0.04		
Benzo(g,h,i)perylene)	< 0.04		

ENVIRONMENTAL CHEMISTS

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Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-09-02 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-06 1/2 021318.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	-d12	% Recovery: 83 93	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		<0.4		
Acenaphthylene		4.5		
Acenaphthene		2.4		
Fluorene		0.34		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		< 0.04		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen	e	< 0.04		
Benzo(k)fluoranther		< 0.04		
Indeno(1,2,3-cd)pyre		< 0.04		
Dibenz(a,h)anthrace		< 0.04		
Benzo(g,h,i)perylene		< 0.04		

ENVIRONMENTAL CHEMISTS

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Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-020 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-07 1/2 021319.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	-d12	% Recovery: 78 90	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		< 0.4		
Acenaphthylene		< 0.04		
Acenaphthene		0.041		
Fluorene		< 0.04		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		< 0.04		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen	ie	< 0.04		
Benzo(k)fluoranther	ne	< 0.04		
Indeno(1,2,3-cd)pyre		< 0.04		
Dibenz(a,h)anthrace		< 0.04		
Benzo(g,h,i)perylene		< 0.04		

ENVIRONMENTAL CHEMISTS

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Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-9-0 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	020719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-08 1/2 021320.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene	d12	% Recovery: 89 98 Concentration	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		ug/L (ppb)		
Naphthalene		<0.4		
Acenaphthylene		< 0.04		
Acenaphthene		0.049		
Fluorene		< 0.04		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		< 0.04		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen	e	< 0.04		
Benzo(k)fluoranther		< 0.04		
Indeno(1,2,3-cd)pyre		< 0.04		
Dibenz(a,h)anthrace		< 0.04		
Benzo(g,h,i)perylene		< 0.04		
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ENVIRONMENTAL CHEMISTS

5		1 5		
Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-7-020 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	819	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-09 1/2 021321.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene-	-d12	% Recovery: 96 106	Lower Limit: 31 25	Upper Limit: 160 165
Compounds:		Concentration ug/L (ppb)		
Naphthalene		< 0.4		
Acenaphthylene		< 0.04		
Acenaphthene		< 0.04		
Fluorene		< 0.04		
Phenanthrene		< 0.04		
Anthracene		< 0.04		
Fluoranthene		< 0.04		
Pyrene		< 0.04		
Benz(a)anthracene		< 0.04		
Chrysene		< 0.04		
Benzo(a)pyrene		< 0.04		
Benzo(b)fluoranthen		< 0.04		
Benzo(k)fluoranthen		< 0.04		
Indeno(1,2,3-cd)pyre		< 0.04		
Dibenz(a,h)anthrace		< 0.04		
Benzo(g,h,i)perylene)	< 0.04		

ENVIRONMENTAL CHEMISTS

5		1 5		
Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blar Not Applicat 02/12/19 02/13/19 Water ug/L (ppb)		Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 09-359 mb 021306.D GCMS6 VM
Surrogates: Anthracene-d10 Benzo(a)anthracene Compounds:	-d12	% Recovery: 96 107 Concentration ug/L (ppb)	Lower Limit: 31 25	Upper Limit: 160 165
Naphthalene		<0.2		
		<0.2		
Acenaphthylene				
Acenaphthene		< 0.02		
Fluorene		< 0.02		
Phenanthrene		< 0.02		
Anthracene		< 0.02		
Fluoranthene		< 0.02		
Pyrene		< 0.02		
Benz(a)anthracene		< 0.02		
Chrysene		< 0.02		
Benzo(a)pyrene		< 0.02		
Benzo(b)fluoranthen	e	< 0.02		
Benzo(k)fluoranther	ie	< 0.02		
Indeno(1,2,3-cd)pyre		< 0.02		
Dibenz(a,h)anthrace		< 0.02		
Benzo(g,h,i)perylene		< 0.02		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-02R-020819 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-01 902134-01.096 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		
Chromium	<1		
Copper	<5		
Lead	<1		
Mercury	<1		
Nickel	2.15		
Zinc	<5		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-03R-020819 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-02 902134-02.103 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		
Chromium	1.47		
Copper	<5		
Lead	<1		
Mercury	<1		
Nickel	1.67		
Zinc	<5		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-020719 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-03 902134-03.104 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	17.4		
Chromium	1.58		
Copper	24.7		
Lead	1.51		
Mercury	<1		
Nickel	1.98		
Zinc	<5		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-06-020719 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-04 902134-04.105 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	3.04		
Chromium	2.00		
Copper	19.4		
Lead	2.04		
Mercury	<1		
Nickel	7.79		
Zinc	135		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-08-020819 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-05 902134-05.109 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		
Chromium	<1		
Copper	<5		
Lead	<1		
Mercury	<1		
Nickel	1.99		
Zinc	10.1		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-09-020719 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-06 902134-06.110 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		
Chromium	1.12		
Copper	<5		
Lead	<1		
Mercury	<1		
Nickel	<1		
Zinc	<5		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-020719 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-07 902134-07.111 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	6.72		
Chromium	2.00 J		
Copper	<5 J		
Lead	<1		
Mercury	<1		
Nickel	<1 J		
Zinc	<5 J		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-020719 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-07 x2 902134-07 x2.030 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	6.55		
Chromium	2.33		
Copper	<10		
Lead	<2		
Mercury	<2		
Nickel	<2		
Zinc	<10		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-9-020719 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-08 902134-08.112 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	6.52		
Chromium	2.00 J		
Copper	<5 J		
Lead	<1		
Mercury	<1		
Nickel	<1 J		
Zinc	<5 J		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-9-020719 02/08/19 02/12/19 02/13/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-08 x2 902134-08 x2.031 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	6.38		
Chromium	2.17		
Copper	<10		
Lead	<2		
Mercury	<2		
Nickel	<2		
Zinc	<10		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-7-020819 02/08/19 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 902134-09 902134-09.113 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		
Chromium	<1		
Copper	<5		
Lead	<1		
Mercury	<1		
Nickel	1.36		
Zinc	<5		

ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank NA 02/12/19 02/12/19 Water ug/L (ppb)	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Infrastructure Solutions Kelly Moore 14697009 I9-95 mb I9-95 mb.094 ICPMS2 SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		
Chromium	<1		
Copper	<5		
Lead	<1		
Mercury	<1		
Nickel	<1		
Zinc	<5		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-02R-0 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)	020819	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 14697009 902134-01 021421.D GCMS4 MS	a Infrastructure Solutions
Commentant a su		0/ D	Lower	Upper	
Surrogates: 1,2-Dichloroethane-	d4	% Recovery: 100	Limit: 57	Limit: 121	
Toluene-d8	u4	100	63	121	
4-Bromofluorobenze	ene	100	60	133	
		Concentration			Concentration
Compounds:		ug/L (ppb)	Compour	nds:	ug/L (ppb)
Dichlorodifluoromet	thane	<1	1,3-Dich	loropropane	<1
Chloromethane		<10		oroethene	<1
Vinyl chloride		< 0.2		chloromethane	<1
Bromomethane		<1		omoethane (EDB)	<1
Chloroethane		<1	Chlorobe		<1
Trichlorofluorometh	nane	<1	Ethylber		<1
Acetone 1,1-Dichloroethene		<50 <1	n,p-Xyle	Cetrachloroethane	<1 <2
Hexane		<1 <1	o-Xylene		<1
Methylene chloride		<5	Styrene		<1
Methyl t-butyl ethe	r (MTBE)	<1	Isopropy	lbenzene	<1
trans-1,2-Dichloroe		<1	Bromofo		<1
1,1-Dichloroethane		<1	n-Propyl	benzene	<1
2,2-Dichloropropane		<1	Bromobe		<1
cis-1,2-Dichloroethe	ene	<1		methylbenzene	<1
Chloroform		<1		etrachloroethane	<1
2-Butanone (MEK)		<10		chloropropane	<1
1,2-Dichloroethane		<1 <1	2-Chloro 4-Chloro		<1 <1
1,1,1-Trichloroetha 1,1-Dichloropropene		<1 <1		ylbenzene	<1 <1
Carbon tetrachlorid		<1 <1		methylbenzene	<1
Benzene		< 0.35		lbenzene	<1
Trichloroethene		<1	U	oyltoluene	<1
1,2-Dichloropropane	9	<1		lorobenzene	<1
Bromodichlorometh	ane	<1		lorobenzene	<1
Dibromomethane		<1		lorobenzene	<1
4-Methyl-2-pentano		<10		omo-3-chloropropane	<10
cis-1,3-Dichloroprop	ene	<1		chlorobenzene	<1
Toluene		<1		orobutadiene	<1
trans-1,3-Dichlorop 1,1,2-Trichloroetha		<1 <1	Naphtha	lene chlorobenzene	<1 <1
2-Hexanone	lle	<1 <10	1,2,3-111	cinorobenzelle	<1
		×10			

ENVIRONMENTAL CHEMISTS

Surrogates:% Recovery:Limit:Limit:Limit:1.2-Dichloroethane-d49857121Toluene-d899631274-Bromofluorobenzene9960133ConcentrationCompounds:ug/L (ppb)Compounds:ug/L (ppb)Dichlorodifluoromethane<11,3-Dichloropropane<1Chiromothane<10Tetrachloromethane<1Chiromothane<11,2-Dibromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chiromothane<1Chirophenzene<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<1Chiropfluoromethane<1Name<	Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-03R-0 02/08/19 02/14/15 02/14/19 Water ug/L (ppb))20819	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment 8 Kelly Moore 14697009 902134-02 021422.D GCMS4 MS	a Infrastructure Solutions
1.2-Dichloroethane-d49857121Toluene-d899631274-Bromofluorobenzene9960133Concentrationug/L (ppb)Compounds:ug/L (ppb)Dichlorodifluoromethane<1	Sumaratari		0/ Decouvern			
		d4				
4-Bromofluorobenzene9960133Compounds:ug/L (ppb)Compounds:ug/L (ppb)Dichlorodifluoromethane<1		u 4				
Concentration ug/L (ppb)Compounds:Concentration ug/L (ppb)Dichlorodifluoromethane<1		ene				
Compounds:ug/L (ppb)Compounds:ug/L (ppb)Dichlorodifluoromethane<1						
Dichlorodifluoromethane<11.3-Dichloropropane<1Chloromethane<10	Compoundor			Compose	nda	
Chloromethane<10Tetrachloroethene<1Vinyl chloride<0.2	Compounds:		ug/r (ppp)	Compour	nus.	ug/L (ppb)
Vinyl chloride<0.2Dibromochloromethane<1Bromomethane<1		thane				<1
Bromomethane<11,2-Dibromoethane (EDB)<1Chloroethane<1						
Chloroethane<1Chlorobenzene<1Trichlorofluoromethane<1						
Trichlorofluoromethane<1Ethylbenzene<1Acctone<50						
Acetone<501,1,2-Tetrachloroethane<11,1-Dichloroethene<1						
1,1-Dichloroethene<1m,p.Xylene<2Hexane<1		nane				
Hexane<1o-Xylene<1Methylene chloride<5						
Methylene chloride<5Styrene<1Methyl t-butyl ether (MTBE)<1						
Methyl t-butyl ether (MTBE)<1Isopropylbenzene<1trans-1,2-Dichloroethene<1						
trans-1,2-Dichloroethene<1Bromoform<11,1-Dichloroethane<1		r (MTBF)			lhonzono	
1,1-Dichloroethane<1n-Propylbenzene1.52,2-Dichloropropane<1						
2,2-Dichloropropane<1Bronobenzene<1cis-1,2-Dichloroethene<1		lineme				
cis-1,2-Dichloroethene<11,3,5-Trimethylbenzene<1Chloroform<1		ç				
Chloroform<11,1,2,2-Tetrachloroethane<12-Butanone (MEK)<10						
1,2-Dichloroethane (EDC)<1			<1			<1
1,1,1-Trichloroethane<14-Chlorotoluene<11,1-Dichloropropene<1	2-Butanone (MEK)		<10	1,2,3-Tri	chloropropane	<1
1,1-Dichloropropene<1tert-Butylbenzene<1Carbon tetrachloride<1	1,2-Dichloroethane	(EDC)	<1	2-Chloro	toluene	<1
Carbon tetrachloride<11,2,4-Trimethylbenzene<1Benzene<0.35			<1			<1
Benzene<0.35sec-Butylbenzene<1Trichloroethene<1						
Trichloroethene<1p-Isopropyltoluene<11,2-Dichloropropane<1		e			•	
1,2-Dichloropropane<1				U		
Bromodichloromethane<11,4-Dichlorobenzene<1Dibromomethane<1						
Dibromomethane<11,2-Dichlorobenzene<14-Methyl-2-pentanone<10						
4-Methyl-2-pentanone<101,2-Dibromo-3-chloropropane<10cis-1,3-Dichloropropene<1		lane				
cis-1,3-Dichloropropene<11,2,4-Trichlorobenzene<1Toluene<1		no				
Toluene<1Hexachlorobutadiene<1trans-1,3-Dichloropropene<1	ů i					
trans-1,3-Dichloropropene<1Naphthalene<11,1,2-Trichloroethane<1						
1,1,2-Trichloroethane <1 1,2,3-Trichlorobenzene <1		ropene				
				•		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-02 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment 8 Kelly Moore 14697009 902134-03 1/10 021431.D GCMS4 MS	z Infrastructure Solutions 9
Surrogates:		% Recovery:	Lower Limit:	Upper Limit:	
1,2-Dichloroethane-	d4	103	57	121	
Toluene-d8		94	63	127	
4-Bromofluorobenze	ene	90	60	133	
		Concentration			Concentration
Compounds:		ug/L (ppb)	Compour	nds:	ug/L (ppb)
Dichlorodifluoromet	hane	<10	1,3-Dich	loropropane	<10
Chloromethane		<100		oroethene	<10
Vinyl chloride		<2		chloromethane	<10
Bromomethane		<10		omoethane (EDB)	<10
Chloroethane		<10	Chlorobe		<10
Trichlorofluorometh Acetone	nane	<10 <500	Ethylber	izene 'etrachloroethane	2,500 ve <10
1,1-Dichloroethene		<500 <10	m,p-Xyle		<10 5,400 ve
Hexane		<10	o-Xylene		1,200
Methylene chloride		<50	Styrene		<10
Methyl t-butyl ethe	r (MTBE)	<10	Isopropy	lbenzene	26
trans-1,2-Dichloroe		<10	Bromofo		<10
1,1-Dichloroethane		<10	n-Propyl	benzene	23
2,2-Dichloropropane		<10	Bromobe		<10
cis-1,2-Dichloroethe	ne	<10		methylbenzene	33
Chloroform		<10		etrachloroethane	<10
2-Butanone (MEK)		<100		chloropropane	<10
1,2-Dichloroethane 1,1,1-Trichloroethau		<10 <10	2-Chloro 4-Chloro		<10 <10
1,1-Dichloropropene		<10		ylbenzene	<10 <10
Carbon tetrachlorid		<10		methylbenzene	67
Benzene	-	<3.5		lbenzene	<10
Trichloroethene		<10	5	oyltoluene	<10
1,2-Dichloropropane	e	<10	1,3-Dich	lorobenzene	<10
Bromodichlorometh	ane	<10		lorobenzene	<10
Dibromomethane		<10		lorobenzene	<10
4-Methyl-2-pentano		<100		omo-3-chloropropane	<100
cis-1,3-Dichloroprop	ene	<10		chlorobenzene	<10
Toluene	ronono	190 <10		probutadiene	<10 <10
trans-1,3-Dichlorop 1,1,2-Trichloroetha		<10 <10	Naphtha 1 2 3-Tri	chlorobenzene	<10 <10
2-Hexanone		<100	1,2,0-111		NIU
- 110/00/010					

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-04-02 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment 8 Kelly Moore 14697009 902134-03 1/100 021430.D GCMS4 MS	a Infrastructure Solutions 9
Surrogates: 1,2-Dichloroethane- Toluene-d8 4-Bromofluorobenze		% Recovery: 99 100 102	Lower Limit: 57 63 60	Upper Limit: 121 127 133	
Compounds:		Concentration ug/L (ppb)	Compour	nds:	Concentration ug/L (ppb)
Dichlorodifluoromet Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluorometh Acetone 1,1-Dichloroethene Hexane Methylene chloride Methyl t-butyl ether trans-1,2-Dichloroethane 2,2-Dichloropethane 2,2-Dichloropethane Chloroform 2-Butanone (MEK) 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropropene Carbon tetrachlorid Benzene Trichloroethene 1,2-Dichloropropane Bromodichloromethane 4-Methyl-2-pentanon cis-1,3-Dichloroprop Toluene	nane (MTBE) chene ne (EDC) ne e ane ane ene ene	<100 < 1,000 < 20 < 100 < 100 < 100 < 100 < 5,000 < 100 < 100 < 500 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 <	Tetrachl Dibromo 1,2-Dibra Chlorobe Ethylber 1,1,1,2-T m,p-Xyle o-Xylene Styrene Isopropy Bromofo n-Propyl Bromobe 1,3,5-Tri 1,1,2,2-T 1,2,3-Tri 2-Chloro 4-Chloro tert-Buty 1,2,4-Tri sec-Buty p-Isoprop 1,3-Dich 1,2-Dibra 1,2-Dibra 1,2,4-Tri Hexachle Naphtha	izene ietrachloroethane ene lbenzene mbenzene enzene methylbenzene ietrachloroethane chloropropane toluene toluene toluene bylbenzene methylbenzene lbenzene lorobenzene lorobenzene lorobenzene omo-3-chloropropane chlorobenzene orobutadiene brobutadiene lene	<100 <100 <100 <100 2,800 <100 2,800 <100 6,100 1,300 <100 <100 <100 <100 <100 <100 <100 <
trans-1,3-Dichloropi 1,1,2-Trichloroethai 2-Hexanone		<100 <100 <1,000	1	llene chlorobenzene	<100 <100

ENVIRONMENTAL CHEMISTS

Client Sample ID: KMW-06-02 Date Received: 02/08/19 Date Extracted: 02/14/15 Date Analyzed: 02/14/19 Matrix: Water Units: ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 14697009 902134-04 021428.D GCMS4 MS	a Infrastructure Solutions
Surrogates:	% Recovery:	Lower Limit:	Upper Limit:	
1,2-Dichloroethane-d4	99	57	121	
Toluene-d8	99	63	127	
4-Bromofluorobenzene	106	60	133	
	Concentration			Concentration
Compounds:	ug/L (ppb)	Compour	nds:	ug/L (ppb)
Dichlorodifluoromethane	<1		loropropane	<1
Chloromethane	<10		oroethene	<1
Vinyl chloride	<0.2		chloromethane	<1
Bromomethane	<1		omoethane (EDB)	<1
Chloroethane	<1	Chlorobe		<1
Trichlorofluoromethane	<1	Ethylber		<1
Acetone 1,1-Dichloroethene	<50 <1		etrachloroethane	<1 <2
Hexane	<1 <1	m,p-Xyle o-Xylene		<2 <1
Methylene chloride	<1 <5	Styrene		<1
Methyl t-butyl ether (MTBE)	<1	Isopropy	lbenzene	8.3
trans-1,2-Dichloroethene	<1	Bromofo		<1
1,1-Dichloroethane	<1	n-Propyl		12
2,2-Dichloropropane	<1	Bromobe		<1
cis-1,2-Dichloroethene	<1	1,3,5-Tri	methylbenzene	<1
Chloroform	<1		etrachloroethane	<1
2-Butanone (MEK)	<10		chloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chloro		<1
1,1,1-Trichloroethane	<1	4-Chloro		<1
1,1-Dichloropropene	<1		lbenzene	<1
Carbon tetrachloride	<1		methylbenzene	<1
Benzene	< 0.35	sec-Buty		1.2
Trichloroethene	<1		oyltoluene	<1
1,2-Dichloropropane Bromodichloromethane	<1		lorobenzene	<1
Dibromomethane	<1 <1		lorobenzene lorobenzene	<1 <1
4-Methyl-2-pentanone	<1 <10		omo-3-chloropropane	<10
cis-1,3-Dichloropropene	<10		chlorobenzene	<10
Toluene	<1		probutadiene	<1
trans-1,3-Dichloropropene	<1	Naphtha		<1
1,1,2-Trichloroethane	<1	•	chlorobenzene	<1
2-Hexanone	<10			

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-08-02 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)	20819	Client: Project: Lab ID: Data File: Instrument: Operator:	Kelly Moore 14697009 902134-05 021423.D GCMS4 MS	a Infrastructure Solutions 9
Surrogates:		% Recovery:	Lower Limit:	Upper Limit:	
1,2-Dichloroethane-	d4	107	57	121	
Toluene-d8	u i	98	63	127	
4-Bromofluorobenze	ene	95	60	133	
		Concentration			Concentration
Compounds:		ug/L (ppb)	Compour	nds:	ug/L (ppb)
Dichlorodifluoromet	thane	<1	1,3-Dich	loropropane	<1
Chloromethane		<10		oroethene	<1
Vinyl chloride		< 0.2		chloromethane	<1
Bromomethane		<1		omoethane (EDB)	<1
Chloroethane		<1	Chlorobe		<1
Trichlorofluorometh	nane	<1	Ethylber		<1
Acetone		<50		etrachloroethane	<1
1,1-Dichloroethene		<1	m,p-Xyle		<2
Hexane		<1	o-Xylene		<1
Methylene chloride		<5	Styrene	11	<1
Methyl t-butyl ether trans-1,2-Dichloroet		<1 <1	Bromofo	lbenzene	<1 <1
1,1-Dichloroethane	linene	<1 <1	n-Propyl		<1 <1
2,2-Dichloropropane		<1 <1	Bromobe		<1 <1
cis-1,2-Dichloroethe		<1 <1		methylbenzene	<1 <1
Chloroform		<1		etrachloroethane	<1
2-Butanone (MEK)		<10		chloropropane	<1
1,2-Dichloroethane	(EDC)	<1	2-Chloro		<1
1,1,1-Trichloroetha		<1	4-Chloro		<1
1,1-Dichloropropene		<1	tert-But	ylbenzene	<1
Carbon tetrachlorid		<1		methylbenzene	<1
Benzene		< 0.35	sec-Buty	lbenzene	<1
Trichloroethene		<1		pyltoluene	<1
1,2-Dichloropropane		<1		lorobenzene	<1
Bromodichlorometh	ane	<1		lorobenzene	<1
Dibromomethane		<1		lorobenzene	<1
4-Methyl-2-pentano		<10		omo-3-chloropropane	<10
cis-1,3-Dichloroprop	oene	<1		chlorobenzene	<1
Toluene		<1		orobutadiene	<1
trans-1,3-Dichlorop		<1	Naphtha		<1
1,1,2-Trichloroetha 2-Hexanone	ne	<1 <10	1,2,3-111	chlorobenzene	<1
2-mexamone		<10			

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-09-02 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment 8 Kelly Moore 14697009 902134-06 021424.D GCMS4 MS	a Infrastructure Solutions 9
Surrogates:		% Recovery:	Lower Limit:	Upper Limit:	
1,2-Dichloroethane-	d4	101	57	121	
Toluene-d8		107	63	127	
4-Bromofluorobenze	ene	100	60	133	
		Concentration			Concentration
Compounds:		ug/L (ppb)	Compour	nds:	ug/L (ppb)
Dichlorodifluoromet	thane	<1		loropropane	<1
Chloromethane		<10		oroethene	<1
Vinyl chloride		<0.2		chloromethane	<1
Bromomethane		<1		omoethane (EDB)	<1
Chloroethane		<1	Chlorobe		<1
Trichlorofluorometh Acetone	lane	<1 <50	Ethylber	Tetrachloroethane	<1 <1
1,1-Dichloroethene		<1	m,p-Xyle		<2
Hexane		<1	o-Xylene		<1
Methylene chloride		<5	Styrene		<1
Methyl t-butyl ethe	r (MTBE)	<1		lbenzene	1.6
trans-1,2-Dichloroe		<1	Bromofo		<1
1,1-Dichloroethane		<1	n-Propyl	benzene	1.6
2,2-Dichloropropane		<1	Bromobe		<1
cis-1,2-Dichloroethe	ene	<1		methylbenzene	<1
Chloroform		<1		etrachloroethane	<1
2-Butanone (MEK)		<10	1,2,3-1ri 2-Chloro	chloropropane	<1
1,2-Dichloroethane 1,1,1-Trichloroethau		<1 <1	2-Chloro 4-Chloro		<1 <1
1,1-Dichloropropene		<1 <1		ylbenzene	<1
Carbon tetrachlorid		<1		methylbenzene	<1
Benzene	-	< 0.35		lbenzene	<1
Trichloroethene		<1		pyltoluene	<1
1,2-Dichloropropane	9	<1		lorobenzene	<1
Bromodichlorometh	ane	<1		lorobenzene	<1
Dibromomethane		<1		lorobenzene	<1
4-Methyl-2-pentano		<10		omo-3-chloropropane	<10
cis-1,3-Dichloroprop	bene	<1		chlorobenzene	<1
Toluene	nonono	<1		orobutadiene	<1
trans-1,3-Dichlorop 1,1,2-Trichloroetha		<1 <1	Naphtha 1 2 3-Tri	ichlorobenzene	<1 <1
2-Hexanone		<10	1,2,3-111	cinoi openzelle	\1
		×10			

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-02 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)	0719	Client: Project: Lab ID: Data File: Instrument: Operator:	Kelly Moore 14697009 902134-07 021425.D GCMS4 MS	z Infrastructure Solutions 9
Surrogates:		% Recovery:	Lower Limit:	Upper Limit:	
1,2-Dichloroethane-	d4	99	57	121	
Toluene-d8		106	63	127	
4-Bromofluorobenze	ene	105	60	133	
		Concentration			Concentration
Compounds:		ug/L (ppb)	Compour	nds:	ug/L (ppb)
Dichlorodifluoromet	hane	<1		loropropane	<1
Chloromethane		<10		oroethene	<1
Vinyl chloride		< 0.2		chloromethane	<1
Bromomethane		<1		omoethane (EDB)	<1
Chloroethane		<1	Chlorobe		<1
Trichlorofluorometh	nane	<1	Ethylber		<1
Acetone 1,1-Dichloroethene		<50 <1		Tetrachloroethane	<1 6.0
Hexane		<1 <1	m,p-Xyle o-Xylene		<1
Methylene chloride		<5	Styrene		<1
Methyl t-butyl ethe	r (MTBE)	<1		lbenzene	10
trans-1,2-Dichloroe		<1	Bromofo		<1
1,1-Dichloroethane		<1	n-Propyl	benzene	8.5
2,2-Dichloropropane	e	<1	Bromobe		<1
cis-1,2-Dichloroethe	ene	<1		methylbenzene	<1
Chloroform		<1		etrachloroethane	<1
2-Butanone (MEK)		<10		chloropropane	<1
1,2-Dichloroethane		<1	2-Chloro		<1
1,1,1-Trichloroetha		<1	4-Chloro		<1
1,1-Dichloropropene Carbon tetrachlorid		<1 <1		ylbenzene	<1 <1
Benzene	e	<0.35		methylbenzene lbenzene	<1 <1
Trichloroethene		<0.55	U	oyltoluene	<1
1,2-Dichloropropane	ç	<1		lorobenzene	<1
Bromodichlorometh		<1		lorobenzene	<1
Dibromomethane		<1		lorobenzene	<1
4-Methyl-2-pentano	ne	<10		omo-3-chloropropane	<10
cis-1,3-Dichloroprop	ene	<1		chlorobenzene	<1
Toluene		<1		orobutadiene	<1
trans-1,3-Dichlorop		<1	Naphtha		<1
1,1,2-Trichloroetha	ne	<1	1,2,3-Tri	chlorobenzene	<1
2-Hexanone		<10			

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-10-9- 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)	020719	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment 8 Kelly Moore 14697009 902134-08 021426.D GCMS4 MS	z Infrastructure Solutions 9
Surrogates:		% Recovery:	Lower Limit:	Upper Limit:	
1,2-Dichloroethane-	d4	99	57	121	
Toluene-d8	u i	104	63	127	
4-Bromofluorobenze	ene	99	60	133	
		Concentration			Concentration
Compounds:		ug/L (ppb)	Compour	nds:	ug/L (ppb)
Dichlorodifluoromet	thane	<1	1,3-Dich	loropropane	<1
Chloromethane		<10		oroethene	<1
Vinyl chloride		<0.2		chloromethane	<1
Bromomethane		<1		omoethane (EDB)	<1
Chloroethane		<1	Chlorobe		<1
Trichlorofluorometh	nane	<1	Ethylber		<1
Acetone		<50		etrachloroethane	<1
1,1-Dichloroethene		<1	m,p-Xyle		6.1
Hexane Methylene chloride		<1 <5	o-Xylene		<1 <1
Methyl t-butyl ethe	r (MTBF)	<5 <1	Styrene	lbenzene	9.1
trans-1,2-Dichloroe		<1 <1	Bromofo		<1
1,1-Dichloroethane	thene	<1	n-Propyl		7.5
2,2-Dichloropropane	د	<1	Bromobe		<1
cis-1,2-Dichloroethe		<1		methylbenzene	<1
Chloroform		<1		'etrachloroethane	<1
2-Butanone (MEK)		<10		chloropropane	<1
1,2-Dichloroethane	(EDC)	<1	2-Chloro		<1
1,1,1-Trichloroetha	ne	<1	4-Chloro	toluene	<1
1,1-Dichloropropene		<1		ylbenzene	<1
Carbon tetrachlorid	e	<1		methylbenzene	<1
Benzene		< 0.35	0	lbenzene	<1
Trichloroethene		<1		pyltoluene	<1
1,2-Dichloropropane		<1		lorobenzene	<1
Bromodichlorometh	ane	<1		lorobenzene	<1
Dibromomethane		<1		lorobenzene	<1
4-Methyl-2-pentano		<10		omo-3-chloropropane chlorobenzene	<10
cis-1,3-Dichloroprop Toluene	belle	<1 <1		probutadiene	<1 <1
trans-1,3-Dichlorop	ronene	<1 <1	Naphtha		<1 <1
1,1,2-Trichloroetha		<1	•	chlorobenzene	<1
2-Hexanone		<10	1,~,0 111		· -
		-			

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	KMW-7-020 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)	819	Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment & Kelly Moore 14697009 902134-09 021427.D GCMS4 MS	a Infrastructure Solutions
Surrogates: 1,2-Dichloroethane- Toluene-d8 4-Bromofluorobenze		% Recovery: 100 94 99	Lower Limit: 57 63 60	Upper Limit: 121 127 133	
Compounds:		Concentration ug/L (ppb)	Compour	nds:	Concentration ug/L (ppb)
Dichlorodifluoromet	thane	<1	1,3-Dich	loropropane	<1
Chloromethane		<10		oroethene	<1
Vinyl chloride		<0.2	Dibromo	chloromethane	<1
Bromomethane		<1	1,2-Dibro	omoethane (EDB)	<1
Chloroethane		<1	Chlorobe	enzene	<1
Trichlorofluorometh	nane	<1	Ethylber		<1
Acetone		<50		etrachloroethane	<1
1,1-Dichloroethene		<1	m,p-Xyle		<2
Hexane		<1	o-Xylene		<1
Methylene chloride		<5	Styrene		<1
Methyl t-butyl ethe		<1	Isopropy		<1
trans-1,2-Dichloroe	thene	<1	Bromofo		<1
1,1-Dichloroethane		<1	n-Propyl		<1
2,2-Dichloropropane		<1	Bromobe		<1
cis-1,2-Dichloroethe Chloroform	ene	<1 <1		methylbenzene 'etrachloroethane	<1
2-Butanone (MEK)		<10		chloropropane	<1 <1
1,2-Dichloroethane	(FDC)	<10 <1	2-Chloro		<1 <1
1,1,1-Trichloroetha		<1	4-Chloro		<1
1,1-Dichloropropene		<1		ylbenzene	<1
Carbon tetrachlorid		<1		methylbenzene	<1
Benzene		< 0.35		lbenzene	<1
Trichloroethene		<1	Ū.	oyltoluene	<1
1,2-Dichloropropane	9	<1		lorobenzene	<1
Bromodichlorometh	ane	<1	1,4-Dich	lorobenzene	<1
Dibromomethane		<1	1,2-Dich	lorobenzene	<1
4-Methyl-2-pentano	ne	<10		omo-3-chloropropane	<10
cis-1,3-Dichloroprop	ene	<1		chlorobenzene	<1
Toluene		<1		probutadiene	<1
trans-1,3-Dichlorop		<1	Naphtha		<1
1,1,2-Trichloroetha	ne	<1	1,2,3-Tri	chlorobenzene	<1
2-Hexanone		<10			

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Trip Blanks 02/08/19 02/14/15 02/14/19 Water ug/L (ppb)		Client: Project: Lab ID: Data File: Instrument: Operator:	Wood Environment 8 Kelly Moore 14697009 902134-10 021429.D GCMS4 MS	a Infrastructure Solutions
Surrogates: 1,2-Dichloroethane- Toluene-d8	d4	% Recovery: 99 103	Lower Limit: 57 63	Upper Limit: 121 127	
4-Bromofluorobenze	ene	103	60	127	
Compounds:		Concentration ug/L (ppb)	Compour	nds:	Concentration ug/L (ppb)
Dichlorodifluoromet	thane	<1	1,3-Dich	loropropane	<1
Chloromethane		<10		oroethene	<1
Vinyl chloride		<0.2		chloromethane	<1
Bromomethane		<1		omoethane (EDB)	<1
Chloroethane		<1	Chlorobe		<1
Trichlorofluorometh Acetone	nane	<1 <50	Ethylber	izene 'etrachloroethane	<1 <1
1,1-Dichloroethene		<50 <1	m,p-Xyle		<1 <2
Hexane		<1	o-Xylene		<1
Methylene chloride		<5	Styrene		<1
Methyl t-butyl ether	r (MTBE)	<1	Isopropy	lbenzene	<1
trans-1,2-Dichloroet		<1	Bromofo		<1
1,1-Dichloroethane		<1	n-Propyl	benzene	<1
2,2-Dichloropropane		<1	Bromobe		<1
cis-1,2-Dichloroethe	ene	<1		methylbenzene	<1
Chloroform		<1		etrachloroethane	<1
2-Butanone (MEK)		<10		chloropropane	<1
1,2-Dichloroethane		<1	2-Chloro		<1
1,1,1-Trichloroetha		<1	4-Chloro		<1
1,1-Dichloropropene Carbon tetrachlorid		<1 <1		ylbenzene methylbenzene	<1 <1
Benzene	c	<0.35		lbenzene	<1
Trichloroethene		<1	U	oyltoluene	<1
1,2-Dichloropropane	e	<1		lorobenzene	<1
Bromodichlorometh		<1		lorobenzene	<1
Dibromomethane		<1	1,2-Dich	lorobenzene	<1
4-Methyl-2-pentano	ne	<10	1,2-Dibro	omo-3-chloropropane	<10
cis-1,3-Dichloroprop	oene	<1		chlorobenzene	<1
Toluene		<1		probutadiene	<1
trans-1,3-Dichlorop		<1	Naphtha		<1
1,1,2-Trichloroetha	ne	<1	1,2,3-Tri	chlorobenzene	<1
2-Hexanone		<10			

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blaz Not Applica 02/14/19 02/14/19 Water ug/L (ppb)		Client: Project: Lab ID: Data File: Instrument: Operator:	Kelly Moore 14697009 09-0281 mb 021413.D GCMS4 MS	z Infrastructure Solutions 9
Surrogates:		% Recovery:	Lower Limit:	Upper Limit:	
1,2-Dichloroethane-	d4	105	57	121	
Toluene-d8		102	63	127	
4-Bromofluorobenze	ne	103	60	133	
		Concentration			Concentration
Compounds:		ug/L (ppb)	Compour	nds:	ug/L (ppb)
Dichlorodifluoromet	hane	<1	1,3-Dich	loropropane	<1
Chloromethane		<10		oroethene	<1
Vinyl chloride		< 0.2	Dibromo	chloromethane	<1
Bromomethane		<1	1,2-Dibro	omoethane (EDB)	<1
Chloroethane		<1	Chlorobe		<1
Trichlorofluorometh	nane	<1	Ethylber		<1
Acetone		<50		etrachloroethane	<1
1,1-Dichloroethene		<1	m,p-Xyle		<2
Hexane		<1	o-Xylene	:	<1
Methylene chloride		<5	Styrene		<1
Methyl t-butyl ether		<1		lbenzene	<1
trans-1,2-Dichloroet	thene	<1	Bromofo		<1
1,1-Dichloroethane	,	<1 <1	n-Propyl Bromobe		<1 <1
2,2-Dichloropropane cis-1,2-Dichloroethe		<1 <1		methylbenzene	<1 <1
Chloroform	ne	<1 <1		etrachloroethane	<1
2-Butanone (MEK)		<10		chloropropane	<1
1,2-Dichloroethane	(EDC)	<1	2-Chloro		<1
1,1,1-Trichloroetha		<1	4-Chloro		<1
1,1-Dichloropropene		<1		ylbenzene	<1
Carbon tetrachlorid		<1		methylbenzene	<1
Benzene		< 0.35		lbenzene	<1
Trichloroethene		<1	p-Isoprop	pyltoluene	<1
1,2-Dichloropropane		<1		lorobenzene	<1
Bromodichlorometh	ane	<1		lorobenzene	<1
Dibromomethane		<1		lorobenzene	<1
4-Methyl-2-pentano		<10		omo-3-chloropropane	<10
cis-1,3-Dichloroprop	ene	<1		chlorobenzene	<1
Toluene		<1		orobutadiene	<1
trans-1,3-Dichlorop	•	<1	Naphtha		<1
1,1,2-Trichloroethau 2-Hexanone	le	<1 <10	1,2,3-111	chlorobenzene	<1
2-mexamone		<10			

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/19 Date Received: 02/08/19 Project: Kelly Moore 14697009, F&BI 902134

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Co	ode: 902134-04 (Ma	trix Spike)					
				Percent	Percent		
			Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Reporting Units	Spike Level	Result	MS	MSD	Criteria	(Limit 20)
Gasoline	ug/L (ppb)	1,000	2,200	140 b	154 b	53-117	10
Laboratory Code: Laboratory Control Sample							
			Percent				
	Reportir	ng Spike	Recovery	Acceptanc	e		
Analyte	Units	Level	LCS	Criteria			
Gasoline	ug/L (pp	b) 1,000	103	69-134			

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/19 Date Received: 02/08/19 Project: Kelly Moore 14697009, F&BI 902134

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 90	2134-04 (Matrix	Spike)					
				Percent	Percent		
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Diesel Extended	ug/L (ppb)	3,000	19,000	140 b	0 b	64-141	200 b
Laboratory Code: Laboratory Control Sample							
			Percent	Percent			
	Reporting	Spike	Recovery	/ Recovery	y Accepta	ance R	PD
Analyte	Units	Level	LCS	LCSD	Crite	ria (Lim	it 20)
Diesel Extended	ug/L (ppb)	3,000	105	108	61-13	33	3

40

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/19 Date Received: 02/08/19 Project: Kelly Moore 14697009, F&BI 902134

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 902134-04 1/2 (Matrix Spike)

-		-	Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Naphthalene	ug/L (ppb)	1	< 0.4	84	80	10-172	5
Acenaphthylene	ug/L (ppb)	1	28	26 b	2 b	38-137	171 b
Acenaphthene	ug/L (ppb)	1	0.71	49 b	53 b	20-150	8 b
Fluorene	ug/L (ppb)	1	0.36	49 b	50 b	10-181	2 b
Phenanthrene	ug/L (ppb)	1	< 0.04	67	67	58-109	0
Anthracene	ug/L (ppb)	1	< 0.04	70	71	47-114	1
Fluoranthene	ug/L (ppb)	1	0.11	71	77	10-171	8
Pyrene	ug/L (ppb)	1	0.15	65	74	63-107	13
Benz(a)anthracene	ug/L (ppb)	1	< 0.04	53 vo	69	60-93	26 vo
Chrysene	ug/L (ppb)	1	< 0.04	48 vo	62	60-102	25 vo
Benzo(b)fluoranthene	ug/L (ppb)	1	< 0.04	45 vo	65	62-91	36 vo
Benzo(k)fluoranthene	ug/L (ppb)	1	< 0.04	38 vo	67	51-98	55 vo
Benzo(a)pyrene	ug/L (ppb)	1	< 0.04	42 vo	64	60-86	42 vo
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	< 0.04	34	60	10-98	55 vo
Dibenz(a,h)anthracene	ug/L (ppb)	1	< 0.04	31	58	10-97	61 vo
Benzo(g,h,i)perylene	ug/L (ppb)	1	< 0.04	31	54	10-102	54 vo

Laboratory Code: Laboratory Control Sample

	,	L	Percent	Percent		
	Reporting	Spike	Recovery LCS	Recovery	Acceptance	RPD
Analyte	Units	Level	-	LCSD	Criteria	(Limit 20)
Naphthalene	ug/L (ppb)	1	88	92	67-116	4
Acenaphthylene	ug/L (ppb)	1	100	103	65-119	3
Acenaphthene	ug/L (ppb)	1	98	102	66-118	4
Fluorene	ug/L (ppb)	1	99	107	64-125	8
Phenanthrene	ug/L (ppb)	1	88	89	67-120	1
Anthracene	ug/L (ppb)	1	91	96	65-122	5
Fluoranthene	ug/L (ppb)	1	88	97	65-127	10
Pyrene	ug/L (ppb)	1	96	92	62-130	4
Benz(a)anthracene	ug/L (ppb)	1	96	100	60-118	4
Chrysene	ug/L (ppb)	1	91	94	66-125	3
Benzo(b)fluoranthene	ug/L (ppb)	1	103	101	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	97	105	62-125	8
Benzo(a)pyrene	ug/L (ppb)	1	96	100	58-127	4
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	104	105	36-142	1
Dibenz(a,h)anthracene	ug/L (ppb)	1	87	93	37-133	7
Benzo(g,h,i)perylene	ug/L (ppb)	1	90	97	34-135	7

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/19 Date Received: 02/08/19 Project: Kelly Moore 14697009, F&BI 902134

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 902134-04 (Matrix Spike)

5		1	,	Percent	Percent		
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Arsenic	ug/L (ppb)	10	3.04	109	110	75-125	1
Chromium	ug/L (ppb)	20	2.00	88	89	75-125	1
Copper	ug/L (ppb)	20	19.4	86	89	75-125	3
Lead	ug/L (ppb)	10	2.04	101	102	75-125	1
Mercury	ug/L (ppb)	5	<1	114	117	75-125	3
Nickel	ug/L (ppb)	20	7.79	84	86	75-125	2
Zinc	ug/L (ppb)	50	135	96	101	75-125	5

Laboratory Code: Laboratory Control Sample

		Percent	
Reporting	Spike	Recovery	Acceptance
Units	Level	LCS	Criteria
ug/L (ppb)	10	100	80-120
ug/L (ppb)	20	101	80-120
ug/L (ppb)	20	103	80-120
ug/L (ppb)	10	102	80-120
ug/L (ppb)	5	116	80-120
ug/L (ppb)	20	102	80-120
ug/L (ppb)	50	105	80-120
	Units ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb)	Units Level ug/L (ppb) 10 ug/L (ppb) 20 ug/L (ppb) 20 ug/L (ppb) 10 ug/L (ppb) 5 ug/L (ppb) 20	Reporting Units Spike Level Recovery LCS ug/L (ppb) 10 100 ug/L (ppb) 20 101 ug/L (ppb) 20 103 ug/L (ppb) 10 102 ug/L (ppb) 5 116 ug/L (ppb) 20 102

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/19 Date Received: 02/08/19 Project: Kelly Moore 14697009, F&BI 902134

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 902134-04 (Matrix Spike)

	D II	A 11	a 1	Percent	Percent	•	
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	<1	102	102	10-172	0
Chloromethane	ug/L (ppb)	50	<10	98	99	25-166	1
/inyl chloride	ug/L (ppb)	50	<0.2	101	101	36-166	0
Bromomethane	ug/L (ppb)	50	<1	96	95	47-169	1
Chloroethane	ug/L (ppb)	50	<1	98	97	46-160	1
Frichlorofluoromethane	ug/L (ppb)	50	<1	105	101	44-165	4
Acetone	ug/L (ppb)	250	<50	83	83 99	10-182 60-136	
,1-Dichloroethene	ug/L (ppb)	50 50	<1 <1	102 99	99 93	52-150	3 6
-lexane Methylene chloride	ug/L (ppb)	50	<1 <5	106	109	67-132	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	91	91	74-127	0
rans-1,2-Dichloroethene	ug/L (ppb) ug/L (ppb)	50	<1	91	98	72-129	1
1.1-Dichloroethane	ug/L (ppb)	50	<1	100	98 94	72-129	6
2.2-Dichloropropane	ug/L (ppb)	50	<1	100	95	36-154	5
is-1,2-Dichloroethene	ug/L (ppb)	50	<1	97	93	71-127	4
Chloroform	ug/L (ppb)	50	<1	96	89	65-132	8
2-Butanone (MEK)	ug/L (ppb)	250	<10	89	84	10-129	6
,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	102	99	69-133	3
1,1.1-Trichloroethane	ug/L (ppb)	50	<1	98	89	60-146	10
,1-Dichloropropene	ug/L (ppb)	50	<1	98	95	69-133	3
Carbon tetrachloride	ug/L (ppb)	50	<1	100	96 96	56-152	4
Benzene	ug/L (ppb)	50	<0.35	98	95	76-125	3
Trichloroethene	ug/L (ppb)	50	<1	92	94	66-135	2
,2-Dichloropropane	ug/L (ppb)	50	<1	92 88	94 95	78-125	8
Bromodichloromethane		50	<1	91	99 99	61-150	8
Dibromomethane	ug/L (ppb) ug/L (ppb)	50	<1	87	99 94	66-141	8
-Methyl-2-pentanone	ug/L (ppb)	250	<10	90	94 99	10-185	10
is-1,3-Dichloropropene		230 50	<10	90 90	99 96	72-132	6
oluene	ug/L (ppb)	50	<1	90 91	98	72-132	7
	ug/L (ppb)			88		76-122 76-130	14
rans-1,3-Dichloropropene ,1,2-Trichloroethane	ug/L (ppb)	50 50	<1	88 97	101 101	68-131	4
-Hexanone	ug/L (ppb)	250	<1 <10	97 102	101	10-185	4
	ug/L (ppb)	230 50	<10	99	98	71-128	1
,3-Dichloropropane Fetrachloroethene	ug/L (ppb)	50 50	<1 <1	99 100	98 99	10-226	1
Dibromochloromethane	ug/L (ppb)	50 50		100	99 106	70-139	1
,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1 <1	107	100	69-134	0
	ug/L (ppb)					77-122	0
Chlorobenzene Ethylbenzene	ug/L (ppb) ug/L (ppb)	50 50	<1	95 99	95 95	69-135	4
.1.1.2-Tetrachloroethane		50	<1 <1	99 98	101	73-137	4 3
n,p-Xylene	ug/L (ppb)	100	<2	96	96	69-135	0
n,p-Aylene -Xylene	ug/L (ppb) ug/L (ppb)	50	<2 <1	96 93	96 92	60-140	1
Styrene		50	<1	93 98	92 97	71-133	1
sopropylbenzene	ug/L (ppb)	50	8.3	93	93	65-142	0
Bromoform	ug/L (ppb)	50		107	106	65-142	1
-Propylbenzene	ug/L (ppb)	50 50	<1 12	107 108 b	106 103 b	58-142 58-144	1 5 b
Bromobenzene	ug/L (ppb)	50 50	12 <1	108 B	105 6		2
,3,5-Trimethylbenzene	ug/L (ppb)	50 50	<1 <1	107	98	75-124 66-137	25
	ug/L (ppb)	50 50		103	98 119		5 1
,1,2,2-Tetrachloroethane	ug/L (ppb)	50 50	<1			51-154	
,2,3-Trichloropropane -Chlorotoluene	ug/L (ppb)		<1	108	104	53-150 66-127	4 7
	ug/L (ppb)	50 50	<1	106 105	99 99	65-127	6
-Chlorotoluene	ug/L (ppb)	50 50	<1		99 95	65-130	3
ert-Butylbenzene	ug/L (ppb)		<1	98			
,2,4-Trimethylbenzene	ug/L (ppb)	50 50	<1	100	95 100	59-146	5 2
ec-Butylbenzene	ug/L (ppb)		1.2	98		64-140	
-Isopropyltoluene	ug/L (ppb)	50	<1	95	97	65-141	2
,3-Dichlorobenzene	ug/L (ppb)	50	<1	97	98 95	72-123	1
,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	95	69-126	0
,2-Dichlorobenzene	ug/L (ppb)	50	<1	96	94	69-128	2
,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	116	124	32-164	7
,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	106	105	66-136	1
Iexachlorobutadiene	ug/L (ppb)	50	<1	104	103	60-143	1
Naphthalene	ug/L (ppb)	50	<1	116	113	44-164	3
.2.3-Trichlorobenzene	ug/L (ppb)	50	<1	108	108	69-148	0

ENVIRONMENTAL CHEMISTS

Date of Report: 02/18/19 Date Received: 02/08/19 Project: Kelly Moore 14697009, F&BI 902134

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Laboratory Couc. Laboratory Co	litror Sample		Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	121	25-158
Chloromethane	ug/L (ppb)	50	112	45-156
Vinyl chloride Bromomethane	ug/L (ppb)	50 50	116 110	50-154
Chloroethane	ug/L (ppb) ug/L (ppb)	50 50	110	55-143 58-146
Trichlorofluoromethane	ug/L (ppb)	250	110	50-150
Acetone	ug/L (ppb)	250	93	53-131
1,1-Dichloroethene	ug/L (ppb)	50	116	67-136
Hexane	ug/L (ppb)	50	116	57-137
Methylene chloride	ug/L (ppb)	50	128	39-148
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50 50	115	64-147
trans-1,2-Dichloroethene 1.1-Dichloroethane	ug/L (ppb) ug/L (ppb)	50 50	122 122 vo	68-128 79-121
2.2-Dichloropropane	ug/L (ppb)	50	122 00	55-143
cis-1,2-Dichloroethene	ug/L (ppb)	50	119	80-123
Chloroform	ug/L (ppb)	50	114	80-121
2-Butanone (MEK)	ug/L (ppb)	250	97	57-149
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	101	73-132
1,1,1-Trichloroethane	ug/L (ppb)	50	108	83-130
1,1-Dichloropropene Carbon tetrachloride	ug/L (ppb)	50 50	106 110	77-129 75-158
Benzene	ug/L (ppb) ug/L (ppb)	50	101	69-134
Trichloroethene	ug/L (ppb)	50	96	80-120
1,2-Dichloropropane	ug/L (ppb)	50	98	77-123
Bromodichloromethane	ug/L (ppb)	50	96	81-133
Dibromomethane	ug/L (ppb)	50	93	82-125
4-Methyl-2-pentanone	ug/L (ppb)	250	89	65-138
cis-1,3-Dichloropropene	ug/L (ppb)	50	93	82-132
Toluene trans-1,3-Dichloropropene	ug/L (ppb)	50 50	100 88	72-122 80-136
1,1,2-Trichloroethane	ug/L (ppb) ug/L (ppb)	50	96	75-124
2-Hexanone	ug/L (ppb)	250	79	60-136
1,3-Dichloropropane	ug/L (ppb)	50	87	76-126
Tetrachloroethene	ug/L (ppb)	50	103	76-121
Dibromochloromethane	ug/L (ppb)	50	101	84-133
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	88	82-125
Chlorobenzene Ethylbenzene	ug/L (ppb) ug/L (ppb)	50 50	94 103	83-114 77-124
1,1,1,2-Tetrachloroethane	ug/L (ppb) ug/L (ppb)	50	103	84-127
m,p-Xylene	ug/L (ppb)	100	101	83-125
o-Xylene	ug/L (ppb)	50	105	81-121
Styrene	ug/L (ppb)	50	100	84-119
Isopropylbenzene	ug/L (ppb)	50	104	85-117
Bromoform	ug/L (ppb)	50	107	74-136
n-Propylbenzene	ug/L (ppb)	50 50	99	74-126
Bromobenzene 1,3,5-Trimethylbenzene	ug/L (ppb) ug/L (ppb)	50 50	96 103	80-121 78-123
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	98	66-126
1,2,3-Trichloropropane	ug/L (ppb)	50	92	67-124
2-Chlorotoluene	ug/L (ppb)	50	101	77-127
4-Chlorotoluene	ug/L (ppb)	50	95	78-128
tert-Butylbenzene	ug/L (ppb)	50	104	80-123
1,2,4-Trimethylbenzene	ug/L (ppb)	50 50	104	79-122
sec-Butylbenzene p-Isopropyltoluene	ug/L (ppb) ug/L (ppb)	50 50	109 106	80-125 81-123
1,3-Dichlorobenzene	ug/L (ppb) ug/L (ppb)	50	98	85-116
1.4-Dichlorobenzene	ug/L (ppb)	50	95	84-121
1,2-Dichlorobenzene	ug/L (ppb)	50	98	85-116
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	110	57-141
1,2,4-Trichlorobenzene	ug/L (ppb)	50	107	72-130
Hexachlorobutadiene	ug/L (ppb)	50	110	53-141
Naphthalene 1,2,3-Trichlorobenzene	ug/L (ppb)	50 50	112 111	64-133 65-136
1,2,3-111010DellZelle	ug/L (ppb)	30	111	00-100

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$ - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

 $hr\ \text{-}\ The\ sample\ and\ duplicate\ were\ reextracted\ and\ reanalyzed.\ RPD\ results\ were\ still\ outside\ of\ control\ limits.\ Variability\ is\ attributed\ to\ sample\ inhomogeneity.$

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

962134			SAMPLI	E CHAI	N OF	CU	STC	DD	r		M	Ê	02.	- 08	-19		ŧ	Un	J5/c	75
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Appendix C

SVE System Monthly Inspection Log. Kelly Moore. Date: 07-02-2019

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	4	
Control Pump (Regenerative Blower)	3	(On / Off)
Entrainment Pump (Transfer Pump)	4	(Auto / Hand / Off)
Pressure Gauges/Flow Meters	3	
Knockout Tank (record level)	y	% full 25%, Manual drain Rumped To Tote,
Knockout Water Tote (record level)	4	% full 15 %
Dilution Valve Status	9	100% closed
Recirculation Valve Status	4	100% Closed

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	2182.65	H2 - min
Catox In (T1)	٥F	639 F	>650
Catox Out (T ₂)	٥F	612'F	600 - 650
Heat Ex (T ₃)	٥F	361'F	300 - 400
Flow	SCFM	154 CFM	<300
LEL	%	2	5-15

de = Scysteen adjustmenty

Item	ge Readings Units	/ Reading
FE – 1	"WC	13.5"WC
PI – 1	"WC (vacuum)	3.5"wc
TI – 1	٥F	62F
FE-2	"WC	o "we

0920, Bump TEST FID - 97. PPM From 100 ppm Hexano

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum ("WC)	Differential Pressure (''WC)
Western Manifold	1026-144	38.4 PPM			
✓ SVE – 13	1024-itus	53,0 PPM	7-70 3-704	4.50" WC	0.060 "We
₽ SVE - 12	1022 HES	52.9 PPM	7 70 3 70 4	7.00 "WC	0.006"wc
SVE - 11	1020 His	23.8 PPM	7 TO 3 TO 4	5%.00 "we	4.735" WC
SVE - 10	1018-11-15	69.5 PPM	7 70 3764	7.25 "we	
SVE - 09	1017-Hus	15.9 PPM	4 TO 3	4,25 00	
Eastern manifold	1105-143	154.0 PPW			
SVE - 01	1106-143	4.5 PPM	2	0.50 WC	0.0 "WC
SVE - 03	1108-Hy	213.0 PM	3 To 7	6.75"we	0.08 "00
🖗 SVE – 05	1110 -HRS	457.0 PPM	4 TOF	7.00"WC	0.012"WC
SVE - 07	1112-HRS	5.7 PPM	2	7.75"WC	0.005 "WC
SVE - 08	1113-HRS	0,3 PPM	2	7.50 "WC	0.001 "wc
SVE - 06	1115 - HRS	10. Color 2011	2	2.00 "wc	0.001"WC
SVE - 04	1117 - HBS	30.3 PPM	2	2,00"WC	0.00; "WC
SVE - 02	1118 HRS	0.0 PPM	2	4.50"WC	0,0024202
SVE Influent	0939 Hy	53.00 PPM			
SVE Effluent	0937 Hus	O.OPPW		TING SOLUTION	

Influent Sample ID: <u>070319-エルF</u> Influent Sample Time: <u>0951・HRS</u> Effluent Sample ID: 070219~EFF Effluent Sample Time: 0942~HRS

Field Representative (Print and Sign): Gwy Hayam Date of Visit: 07-02-19 #= System adjudicents FID VALUES AFTER ADJUSTMENTS EFF 1.6 PPM - INF- 150.0 PPM

0.093 00

1 of 2

AS System Monthly Inspection Log, Kelly Moore. Date: 07-02-2019_ Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	 	
Regenerative Blower		(Auto/Hand/Off)
Heat Exchanger	2	(Auto/ Hand / Off)
Pressure Gauges/Flow Meters	8	
Vent Valve Status	7	open 75%, BAJUSTED TO 60% open

System Gauge Readings

Before Heat Exchanger				_	After	Heat Exc	changer	
ltem	Units	Reading	Operating Range		ltem	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	832.7	4-M -8-GN		Hour Meter Heat Exchanger	Hour's / Minutes	833.1	Hen - m
PI – 3	psi	5,25PSI	0 - 30		PI – 4	psi	4,5 PSI	0 - 30
TI – 3	٩	173'F	150 – 200		TI – 4	귀°	80° F	150 – 200

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS - 1 🖗	0916.445	30"/ 0 pen 10%	3.0 PSI	9.0 70 11.0
AS - 2 🔊	0916144	30%, open To to /.	2.5957	9.0 TO 11.0
AS-3 🖓	OgiFHAR	30% spento45%	3.0 PSI	11.257013.5
AS - 4 🔶	のふこかましめ	30%. open TO 35%	3.0 PSI	10.0 1012.0
AS-5 🔆	0917.40	30% open To35/	2.5 PSI	10,0 7012,0

; 1

Additional Notes.

See Log Book With Todowy date. LEL CALIBRATED, CONFIRMED ZURO ONSETTING AND 25%. LEL SETTENG

Field Representative (Print and Sign) #= System adjustments

SVE System Monthly Inspection Log. Kelly Moore. Date: 07-25-19

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA Condition (Cracks, leaks, non-operational Inspected Item (Y/N) gauges, etc.) Above Ground Piping 4 (On/ Off) Control Pump (Regenerative Blower) 4 (Auto / Hand / Off) Entrainment Pump (Transfer Pump) 4 Pressure Gauges/Flow Meters 3 1-1. Ful Removed 15 gal 121. Fuel C 50 gal Knockout Tank (record level) % full 3 Knockout Water Tote (record level) % full 3 **Dilution Valve Status** y **Recirculation Valve Status** 3

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	2716	Has
Catox In (T1)	٥F	624	>650
Catox Out (T ₂)	٥F	. 638	600 - 650
Heat Ex (T ₃)	٥F	379	300 - 400
Flow	SCFM	N.M.	<300
LEL	%	2	5-15

1.54

System Gauge Readings

Not Measured

Item	Units	Reading
FE – 1	"WC	14.5" Hed g
PI – 1	"WC (vacuum)	14.5" 420
TI – 1	°F	73°F
FE-2	"WC	0.4" 420

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold					
SVE – 13	Alarm	Response -	No Measuremen	te takes	1
SVE - 12	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	,	
SVE – 11		150			
SVE – 10					
SVE - 09		and the second			
Eastern manifold					
SVE - 01					
SVE - 03	145-852	and the way	a Value contractor	200	
SVE - 05					antes 1
SVE - 07				1	
SVE - 08		1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	my marsh 1 mg	UND COLOR	and mark
SVE - 06					
SVE - 04			A		
SVE - 02			a ser that the most		to manager
SVE Influent			The second second second		
SVE Effluent					

AS System Monthly Inspection Log, Kelly Moore. Date: 07-25-19 Visual/Audio Inspection

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	y	~
Regenerative Blower	4	(Auto Hand / Off)
Heat Exchanger	3	(Auto) Hand / Off)
Pressure Gauges/Flow Meters	. 9	
Vent Valve Status	Ч	Approx 60% open

System Gauge Readings

Be	efore Hea	t Exchange	r	After Heat Exchanger			
Item	Units	Reading	Operating Range	Item	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	1365		Hour Meter Heat Exchanger	Hour's / Minutes	1366.2	
Pl – 3	psi	4.5	0 - 30	PI – 4	psi	2.4	0 - 30
TI – 3	۰F	182'E	150 - 200	TI – 4	٥F	97 F	150 - 200

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS – 1	1700 - Hy	Approx - 40% open	2.75	12.00
AS – 2	1	1 Holiopon	2.40	12.75
AS – 3		40%, 0000	3.00	13.50
AS – 4		35%, open	3.00	12.50
AS – 5	a	2 45:1, open	2.40	11.50

Additional Notes.

A horm Response: Susten of Carried. ication of of wh No panel. I suspect of power bump The Control no to Heat and use in the area The

departure @my onal

Field Representative (Print and Sign): Date of Visit: 07.25-19

SVE System Monthly Inspection Log. Kelly Moore. Date: 3-5-2019

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	yes	
Control Pump (Regenerative Blower)	yes	(On/ Off)
Entrainment Pump (Transfer Pump)	yes	(Auto/ Hand / Off)
Pressure Gauges/Flow Meters	yes	
Knockout Tank (record level)	yes	% full 3 1/,
Knockout Water Tote (record level)	yes	% full 15% @53 goal
Dilution Valve Status	yes	closed 100%
Recirculation Valve Status	yes	closed 100%

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	2966,	los
Catox In (T1)	°F	614'F	>650
Catox Out (T ₂)	٥F	659.F	600 - 650
Heat Ex (T ₃)	٥F	386 F	300 - 400
Flow	SCFM	No Messurem	من <300
LEL	%	-8	5-15

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	No Measurement
PI – 1	"WC (vacuum)	14.5 420
TI – 1	٥F	68'F
FE-2 👷	"WC	0.05" HzD

FID Measurements

Pulled + Cleaned The FE-2 Ainflow PETOT Tube, Aieflow being recorded C1.45" H20

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold	(5			
SVE – 13			5	5	>
SVE - 12	NO M	easurements	today. Ale	Im Respe	mse,
SVE – 11	Syster	in Restart,		T	1
SVE - 10	0	((1
SVE - 09					
Eastern manifold					
SVE - 01					
SVE - 03				. /	
SVE - 05					
SVE - 07					
SVE - 08		Called ex			
SVE - 06					
SVE - 04	- T \ .				/
SVE - 02					
SVE Influent			La setter of the set		AND STREET
SVE Effluent		(Maria Statistics	
Influent Sample ID: _ Influent Sample Time Field Representative			Effluent Sample Effluent Sample		
		0	0		1 of

AS System Monthly Inspection Log, Kelly Moore. Date: 03/05 Visual/Audio Inspection

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	yes	
Regenerative Blower	yes	(Auto) Hand / Off)
Heat Exchanger	yes	(Auto/ Hand / Off)
Pressure Gauges/Flow Meters	ires	
Vent Valve Status	yes	open 60% ?

System Gauge Readings

	Be	efore Heat	t Exchange	r	After	Heat Exe	changer
	ltem	Units	Reading	Operating Range	Item	Units	Reading
	Hour Meter Sparge Blower	Hour's / Minutes	1616.3	16 - mi	Hour Meter Heat Exchanger	Hour's / Minutes	1616.7
1	PI – 3	psi	4.5 PSZ	0 - 30	PI – 4	psi	GAG+3,25
	TI – 3	٥F	174 F	150 – 200	TI – 4	٥F	91'E

Air Flow Monitoring

Location	Time	Valve Position (record appx 0 = operangle)	Pressure (psi)	Air Flow (SCFM)
AS – 1	1127 Hy	0-40%	2.75	12.00
AS – 2	N	0 - 40%	2.5	13.00
AS – 3		0.40%	3.0	13.25
AS - 4		0.35%	3,0	12.50
AS – 5	2	0.45%	2.5	11,00

Additional Notes.

Alarm Response HHLLC HOD K.O. Tank Cony arrival ne @ 3% Jull of Tote Full. Troved HHLL On apprest 15% K.O. Tank, Lesterte (0) es Dano Scotem & Monetors nan The chart reco er. it was empty. Fulled FEZ and low Inles 4 Recorded data. austure House Keeping rained 964 remaral All C'my departine operational done.

Field Representative (Print and Sign): Group Change Date of Visit: 3/5/19

Operating Range

H.M.

- 0 - 30

150 - 200

SVE System Monthly Inspection Log. Kelly Moore. Date: # 8.19

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	F	
Control Pump (Regenerative Blower)	4	(On / Off)
Entrainment Pump (Transfer Pump)	3	(Auto)/ Hand / Off)
Pressure Gauges/Flow Meters	Z	
Knockout Tank (record level)	4	% full / 1/,
Knockout Water Tote (record level)	5	% full 16% @ 60 gel
Dilution Valve Status	4	
Recirculation Valve Status	4	

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	3023,58	@ 1005 Hos
Catox In (T1)	۰F	612	>650
Catox Out (T ₂)	٥F	666	600 - 650
Heat Ex (T ₃)	٥F	389	300 - 400
Flow	SCFM	Not Mensu	rd <300
LEL	%	9	5-15

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	Not Neosured
PI – 1	"WC (vacuum)	14.5
TI – 1	°F 68	68
FE-2	"WC	1.2"

FID Measurements

Alorn response, System off @ my arrived, Restarted with out usave.

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differentia Pressure (''WC)
Western Manifold					A CARL PRINT STATE
SVE – 13	Nov	reasonements			4-36
SVE - 12	1				
SVE - 11					
SVE - 10			/		
SVE - 09				1	
Eastern manifold				Press and the	
SVE - 01					
SVE - 03	A.S. M.		/	- Percal and	20 2 August
SVE - 05					
SVE - 07					
SVE - 08	/				1 - 1
SVE - 06	. /				
SVE - 04					1
SVE - 02			_		
SVE Influent					
SVE Effluent					

Field Representative (Print and Sign): George Date of Visit: 3/8/19

AS System Monthly Inspection Log, Kelly Moore. Date: <u>8+8+19</u> Visual/Audio Inspection

item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	3	A
Regenerative Blower	3	(Auto) Hand / Off)
Heat Exchanger		(Auto / Hand / Off)
Pressure Gauges/Flow Meters	Ľ	
Vent Valve Status	3	upen Approx 60%.

System Gauge Readings

Item	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	1672.4 @1604149	
P1 – 3	psi	4.5	0 - 30
TI – 3	٩F	165	150 – 200

|--|

ltem	Units	Reading	Operating Range
Hour Meter Heat Exchanger	Hour's / Minutes	1672.8 C1004kmg	
Pl – 4	psi	4	0 - 30
TI - 4	٩F	84	150 – 200

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
<u>AS –</u> 1	1030	35%.0	2.75	12
AS-2	1	35% 0	2.50	12.5
AS – 3		40%0	3.0	13.25
AS – 4		45%.0	3.0	12.50
AS – 5	d	40%.0	2.5	12.0

Additional Notes.

Instan of Cony arrival No obvious _ Alarm inporce, assure. Replaced The System restarted with out reason. for chart Paper. Montared opention's, all inc contridace deperture - Out @ 1035-His appents normal C my

Field Representative (Print and Sign): Orong Awyon Date of Visit: 8 8 19

SVE System Monthly Inspection Log. Kelly Moore. Date: 8-16 -19

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	9	6
Control Pump (Regenerative Blower)	4	(On) Off)
Entrainment Pump (Transfer Pump)	y	(Auto) / Hand / Off)
Pressure Gauges/Flow Meters	4	
Knockout Tank (record level)	4	% full 0 . 1. Full
Knockout Water Tote (record level)	4	% full 18%. Full @ 70 Col - + 10gal in 11- Sauje.
Dilution Valve Status	4	1 v / · · · · · · · · · · · · · · · · · ·
Recirculation Valve Status	4	

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	3148.1	21000 His.
Catox In (T1)	٥F	632	>650
Catox Out (T ₂)	°F	687	600 - 650
Heat Ex (T ₃)	٥F	404	300 - 400
Flow	SCFM	NoT Measure	<300
LEL	%	-2	5-15

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	Not measured
PI – 1	"WC (vacuum)	14.50" H20
TI – 1	۰F	68'F
FE-2	"WC	1.60 "HZO

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure ("WC)
Western Manifold		-			
SVE - 13	ALARMA	ESSOONSE. NO D	HTA COLLECTED "	Today	1
SVE - 12	~				
SVE - 11					
SVE - 10					
SVE - 09			/		
Eastern manifold					
SVE - 01					
SVE - 03			X		
SVE - 05					
SVE - 07		/			
SVE - 08					
SVE - 06					
SVE - 04					/
SVE - 02		/			Z
SVE Influent	/				
SVE Effluent	(P. C. R. Martin	
nfluent Sample ID: nfluent Sample Time	NA		Effluent Sample Effluent Sample	ID:A Time:A	197.

U

1 of 2

AS System Monthly Inspection Log, Kelly Moore. Date: <u>3-16-19</u> Visual/Audio Inspection

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	ч	
Regenerative Blower	y	(Auto) Hand / Off)
Heat Exchanger	4	(Auto) Hand / Off)
Pressure Gauges/Flow Meters	4	
Vent Valve Status	4	

System Gauge Readings

	Be	efore Hea	t Exchange	er	After			
	Item	Units	Reading	Operating Range	Item	Units	Reading	Operating Range
	Hour Meter Sparge Blower	Hour's / Minutes	1796.3	@ 1000 Az	Hour Meter Heat Exchanger	Hour's / Minutes	1796:7	RIDOO Hu
	PI – 3	psi	4.5	0 - 30	PI – 4	psi	3.5	0 - 30
l	TI – 3	٥F	163	150 - 200	TI – 4	٩F	86	150 - 200

Air Flow Monitoring

ocation Time		Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS – 1	11/1-1700	35%.0	2.75	12.25
AS – 2	1	3570	2,40	13.00
AS – 3		4070	3:00	13,00
AS – 4		45%-0	3.00	12,50
AS – 5	~	45%.0	2.50	12.00

Additional Notes. ALARM RESPONSE. I.O. ENV ON ALTO from 0630 TO APPROX 0800, They Were WRADEL TO RESTART SYSTEM. SUS OFF @ MY ADEXNAL. TROUBLES SHOT, FOUND THERMAL PROTECTIONS TREEPESS ON SNE DRIVE MOTOR STHET UP COIL. RESET, STARTED SUSTEM, MONITORED AMP'S, MOTOR PULLENSO 17 AMPS ACCROSS EACH LEG. COIL SET C23.54 MP'S. Adjustor Coil TO 27 AMP'S. MONITORING OP'S, RECORDING DRIVE MOTOR AMP'S EVERY 0.5-MRS. Amp'A STARIS From 25.5 TO 27.5 - THE APPEARS NORMAL FOR THE DRIVE MOTOR BOSED ON THE DATA PLATE ON THE MOTOR, PULLED & CLEANED THE FED PLATE MOTOR BOSED ON THE METER IS BAD, NOT HOLDING CALEBRATION, RECORDED DATA, OUT C1130 HIS Field Representative (Print and Sign): 2003 AdopARTURE.

SVE System Monthly Inspection Log. Kelly Moore. Date: 08-07-2019

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	3	6
Control Pump (Regenerative Blower)	Y	(On) Off)
Entrainment Pump (Transfer Pump)	y	(Auto)/ Hand / Off)
Pressure Gauges/Flow Meters	Y	
Knockout Tank (record level)	Ч	% full 8%. Fuel @ 8,5 god -
Knockout Water Tote (record level)	3	% full 13'/. fuel @ 53 ged
Dilution Valve Status	У	
Recirculation Valve Status	4	A

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	3012 . 76	the " Min
Catox In (T1)	٩F	617 F	>650
Catox Out (T2)	٥F	653'F	600 - 650
Heat Ex (T ₃)	٥F	388 F	300 - 400
Flow	SCFM ,	660-CFM	GH <300
LEL	%	-84-	5-15

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	3,70" A20
PI – 1	"WC (vacuum)	14,50 "HED Ve
TI – 1	٥F	66°F
FE-2	"WC	1.5"wc-frow

6371 - CFM AFTER LEL CALIBRATION THE VALUE IS 7.

FID Measurements FID BUMP TEST COSZO HUS 101.8 PPM

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold	0914.100	78.50 PPM			
SVE – 13	0920+++4	60,60PPM	3	3.5 WC	0:034 11 we
SVE – 12	0922. Hus	139.10 PPM	4	\$15"WC	0.022 "We
SVE - 11	0924.14	38,40 RPM	- 24	3.5"WC	0.049"we
SVE - 10	0926-14	136,00 PPM	4		0.006"wc
SVE - 09	0928.14		4		0,018 "1 00
Eastern manifold	1011-Has	270,00 PPM			States of the state
SVE - 01	1013-140	5.40 PPM	2	0.50"We	0,003 " we
SVE – 03	1015-HUS	378,00 PPM	7	1	0.024" 00 0
SVE - 05	1017-Hz	7-15,00 PPM	'7	7.00 WC	0.021" WE
SVE - 07	1019-112	16,40PPM	2	8.50" WC	0,010" W
SVE - 08	1021. Hus	5:70 PPM	2	8,00° WC	0,003" WC
SVE - 06	1023-42	1.90 PPM	2	2100 000	0.004" 40
SVE - 04	1025-15-S	49,50 PPM	2		0.004 " WE
SVE - 02	1028-iti	5. BOPAM	2	2.50" We	0.000+" we
SVE Influent	0834	149,3 PPM.			
SVE Effluent	0831	0.0 PPM			The Contraction

Influent Sample ID: INF-080719 Influent Sample Time: 0846-His. Effluent Sample ID: EFF-080719 Effluent Sample Time: 0840-16-3

Field Representative (Print and Sign): Groupe Hagen Date of Visit: 03/07/2019 LEL CALIBRATED, ZERO Spans WAS OFF By -to - 176, 4 or Volts. Adjusted ZERO Spand To ZERO,

AS System Monthly Inspection Log, Kelly Moore. Date: 08-07-2019 Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	3	
Regenerative Blower	2	(Auto/ Hand / Off)
Heat Exchanger	4	(Auto/ Hand / Off)
Pressure Gauges/Flow Meters	4	
Vent Valve Status	7	open approx. 60%

System Gauge Readings

 Be	Before Heat Exchanger			Before Heat Exchanger After Heat Exchanger					
ltem	Units	Reading	Operating Range	ltem	Units	Reading	Operating Range		
Hour Meter Sparge Blower	Hour's / Minutes	1662.1	ph -min	Hour Meter Heat Exchanger	Hour's / Minutes	1662.5	He - min		
PI – 3	psi	4,5 855	0 - 30	PI – 4	psi	4,5.857	0 - 30		
TI – 3	۰F	160'F	150 - 200	TI-4	٩F	-79'F	150 - 200		

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS - 1 AS - 2	0910-14	40% open	2.75	12.0
AS - 2		40 1. open	2.50	11.75
AS – 3		40%, open	3.00	13.00
AS – 4		45%.open	3.00	12.95
AS – 5		45% - open	2.50	12.00

Additional Notes.

All operational Convariand, I received The influent & Effluent Kopon streams Via FID, Then & collected the August 2019 systems Vopus ample, Precorded. system's data, I recorded the west then East Manifold date, I fulled + cleaned The system air flow Pitot tube, Value was & zero. I calibrated the LEL sensor, the Zero pod is not holding Zero. A made no adjustments to the septem. (*1230 Hrs & secured & departed the site for WOOD'S Scattle office to drop off System Vapor samples & the FID Rontal. Field Representative (Print and Sign): Cong. Magan Date of Visit: 08/07/2019

SVE System Monthly Inspection Log. Kelly Moore. Date: 2/19/19

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	System	
Control Pump (Regenerative Blower)	obb	(On / Off)
Entrainment Pump (Transfer Pump)	00	(Auto / Hand / Off)
Pressure Gauges/Flow Meters		
Knockout Tank (record level)		% full
Knockout Water Tote (record level)		% full
Dilution Valve Status		
Recirculation Valve Status	2	

CATOX Screen Readings

Item	Units	Reading		Operating Range
Hour Meter	H-M	N	A	
Catox In (T1)	٥F			>650
Catox Out (T ₂)	٥F			600 - 650
Heat Ex (T ₃)	٥F			300 - 400
Flow	SCFM			<300
LEL	%	2	~	5-15

System Gauge Readings

Item	Units	Reading	
FE – 1	"WC	Ni	A
PI – 1	"WC (vacuum)		(
TI – 1	٥F	1	
FE-2	"WC	1	~

SUE HA METER @3220 Hrs @1330.

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold	>	101			
SVE – 13	/				1
SVE - 12					
SVE - 11			20		
SVE - 10			_		
SVE - 09					
Eastern manifold					
SVE - 01			\sim		
SVE - 03	200	1			10111-1015
SVE - 05					
SVE - 07					
SVE - 08					12.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.
SVE - 06					
SVE - 04					
SVE - 02	/				
SVE Influent	/				
SVE Effluent					
nfluent Sample ID: nfluent Sample Time	NA		Effluent Sample Effluent Sample gan Date of Notes	ID: Time:	A
ield Representative	(Print and S e Poy	ign): George 4/0 e 242 for	Notes.	Visit: <u> </u>	1 o

é

AS System Monthly Inspection Log, *Kelly Moore*. Date: <u>3/19/19</u> Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	System	
Regenerative Blower	off	(Auto / Hand / Off)
Heat Exchanger	10	(Auto / Hand / Off)
Pressure Gauges/Flow Meters		· · · · · · · · · · · · · · · · · ·
Vent Valve Status	d	

System Gauge Readings

Be	Before Heat Exchanger				
Item	Units	Rea	ading	Operating Range	
Hour Meter Sparge Blower	Hour's / Minutes	2	A		
PI – 3	psi			0 - 30	
TI – 3	ዮ	6	-	150 - 200	

After Heat Exchanger

Item	Units	Reading	Operating Range
Hour Meter Heat Exchanger	Hour's / Minutes	NA	
PI – 4	psi		0 - 30
TI – 4	٩	7	150 – 200

<u>Air Flow Monitoring</u>

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS - 1				
ÅS – 2				
AS - 3				
AS - 4				
AS - 5				

Additional Notes.

found a 40 mmp fuse for the drive Motor blown. Suttern off Environmental To chechicas electricans.

Field Representative (Print and Sign): Cerry Abgam Date of Visit: 8/19/19_

SVE System Monthly Inspection Log. Kelly Moore. Date: 3/21/2019

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	7	0
Control Pump (Regenerative Blower)	ÿ	(On// Off)
Entrainment Pump (Transfer Pump)	Š	(Auto Hand / Off)
Pressure Gauges/Flow Meters	3	~
Knockout Tank (record level)	3	% full 0 /,
Knockout Water Tote (record level)	3	% full 181. Fuel @ 70 gal
Dilution Valve Status	y	d
Recirculation Valve Status	7	

CATOX Screen Readings

System Gauge Readings Operating Item Units Reading Units Item Reading Range FE - 1 "WC JoT measured Hour Meter H-M H. m. C1025H 3221.96 PI - 1"WC >650 15.5 "H20 Catox In (T1) ٥F 653 (vacuum) Catox Out (T2) ٥F 600 - 650 687 66'F TI - 1٥F Heat Ex (T₃) ٥F 300 - 400405 FE-2 "WC Flow SCFM No Messures J <300 1.4"wc 3 LEL -5-15

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold		142-s			
SVE - 13	Systen	Restart Today	- No dates co	lected	1 < 30
SVE - 12			1		18 J.
SVE - 11					
SVE - 10					10
SVE - 09					
Eastern manifold					
SVE - 01			/		
SVE - 03	in the				a la chail
SVE - 05					
SVE - 07					
SVE - 08	62		(12.00
SVE - 06			5		V. Andrewski
SVE - 04					
SVE - 02			1		
SVE Influent					
SVE Effluent			The second second		

Effluent Sample ID: _____A Influent Sample ID: ____A 79-2019 gh Field Representative (Print and Sign): Date of Visit: _ 9. Oriona an

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1 of 2

AS System Monthly Inspection Log, Kelly Moore. Date: <u>A 21 - 19</u> Visual/Audio Inspection

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	S	6
Regenerative Blower	2	(Auto) Hand / Off)
Heat Exchanger	9	(Auto Hand / Off)
Pressure Gauges/Flow Meters	4	
Vent Valve Status	4	60°% open

System Gauge Readings

Be	Before Heat Exchanger				
ltem	Units	Reading	Operating Range		
Hour Meter Sparge Blower	Hour's / Minutes	1865.8	@1025 473		
PI – 3	psi	4.5	0 - 30		
TI – 3	٩F	4.5gg	150 - 200		
		163'F			

Atter	After Heat Exchanger				
ltem	Units	Reading	Operating Range		
Hour Meter Heat Exchanger	Hour's / Minutes)870,2 片、門	C1025 40		
PI – 4	psi	3.5	0 - 30		
TI – 4	우	84'P	150 - 200		

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS - 1	1030 11-25	0-40'),	2.75	12.00
AS - 2)	0-40%	2.25	12.75
AS - 3		0 - 45%	3.0	13.00
AS-4		0 . 45%	2.75	12.75
AS – 5	2	0-45%	2.5	12.00
		ΰ	= open	•

Additional Notes.

ONSITE CORASING. NATE WITH I.D. ENV ONS SITE, BENNY WITH KEITHLY
ELE ON SETEROBOSTINS, NATE HAS TEGATENED BLOWER DREVE BELT 4
GREASED MOTOR. BENNY REPLACED 3. 40 AMP FUSES CONFERENTS DREVE
MOTOR, VOLTABE, AMPERADE IS WORKING CORRECTLY. SUSTEM RESTART
0900 HES, I MONLTORED OP'S AND RECORDED System's DATA.
ALL OPERATIONS APPEAR NORMAL CMy SEPARTURE CILOR HIS
Field Representative (Print and Sign):

SVE System Monthly Inspection Log. Kelly Moore. Date: 9-4-2019

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	4	
Control Pump (Regenerative Blower)	4	(On / Off)
Entrainment Pump (Transfer Pump)	Le l	(Auto / Hand / Off)
Pressure Gauges/Flow Meters	q	
Knockout Tank (record level)	4	% full 50), Full @ 20 gel - FUMPED To TOTE,
Knockout Water Tote (record level)	4	% full 20%, Fuel @ 30 gel
Dilution Valve Status	4	
Recirculation Valve Status	4	

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	3563At	21600449
Catox In (T1)	۰F	NA	>650
Catox Out (T2)	٥F		600 - 650
Heat Ex (T ₃)	°F		300 - 400
Flow	SCFM		<300
LEL	%	1	5-15

System Gauge Readings

Item	Units		Reading
FE – 1	"WC	N	1A
PI – 1	"WC (vacuum)	-	
TI – 1	٥F	1	1.00
FE-2	"WC	1	-

Coque - 99.4 FID BUNP TEST FID Measurements RECALEBRATEN FED CI429 HAS 99.0 FID Bump TUST C 1550 ANS 100.1 PP.Y

Location	FID Reading Valve Position (record notch)		Vacuum (''WC)	Differential Pressure (''WC)	
Western Manifold					
SVE – 13	NO SAMP	LES OR DATA C	Duector Topy		and the second second
SVE - 12		THE THEREMAL	VOC DESTRUCTED	ON IS VE	Ry Low
SVE - 11		~			5
SVE - 10					
SVE - 09					The second second
Eastern manifold					
SVE - 01					
SVE - 03	1.2.				Sec. Company
SVE - 05					
SVE - 07					
SVE - 08				1	1 2 De
SVE - 06					
SVE - 04					
SVE - 02					
SVE Influent	1546	348 ppm			
SVE Effluent	1545	248 PPM			

Influent Sample ID: A	Effluent Sample ID:	
Influent Sample Time: Field Representative (Print and Sign):	Drongetbugen Date of Visit: 9-4-2019	8 (F)
Set Point Temp morenad &		1 of 2

AS System Monthly Inspection Log, Kelly Moore. Date: <u>9-4-2019</u> Visual/Audio Inspection

item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	ц	0
Regenerative Blower	4	(Auto/ Hand / Off)
Heat Exchanger		(Auto) / Hand / Off)
Pressure Gauges/Flow Meters	्र	
Vent Valve Status	4	

System Gauge Readings

ltern	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	2208.H	C1600
PI – 3	psi	NIA	0 - 30
TI – 3	٩	7.	150 - 200

After Heat Exchanger

		-	
Item	Units	Reading	Operating Range
Hour Meter Heat Exchanger	Hour's / Minutes	2209-H	CILOO HS
P! - 4	psi	NJA	0 - 30
TI – 4	· °F	4	150 - 200

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psl)	Air Flow (SCFM)
AS - 1	System shut	cown @ 1600 -	Que To pour doca	fulroction .
AS-2		C	C	2
AS – 3				
AS – 4))		
AS - 5				

Additional Notes.

Suplan operational C my arrival. On site for September 2019 Vapor sompling. Screened Eff & And Vapor Streams Via FID. 125-EFF, 230ppor ENF. Voc distruction Very Low. Pulled air flew Peter Tube & Cleaned. Recalibrated LEC Increased op Temp Teron 650 to 750'F Measured Voc's EFF 143gra, INF 2225950. shut down SVE & allowed To Cool, Inspected Calabit + Tour Video, opposers OK. Set Temp @ 800 F to Clean Ran - 1 An a Radouted Vopon Streams @ 1500. EFF - 248 pp.n - INF 348 pp.M. Distruction Very Low, shot Down System @ 1600 His Field Representative (Print and Sign) _____ Date of Visit: 9-4-2019

SVE System Monthly Inspection Log. Kelly Moore. Date: 01-09-2020

Item	Inspected (Y/N)	naunes etc.)		
Above Ground Piping	Yes	VAC GAUGGE (2013) CMANIFOLD ARE ARMAGED VAC GAUGGE NOT WORKING - PIPE + VANES OK		
Control Pump (Regenerative Blower)	YES	(On / Off) ol		
Entrainment Pump (Transfer Pump)	YES	(Auto / Hand / Off) Auro		
Pressure Gauges/Flow Meters	YES	VAC GAUGES CMAN 2 FOLDS HAVE ISSUES		
Knockout Tank (record level)	VES	% full 1/1		
Knockout Water Tote (record level)	455	% full 35 1/,		
Dilution Valve Status	yes	CLOSED 100'/.		
Recirculation Valve Status	yes	0PEN 100%		

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	3598.7	4
Catox In (T1)	٥F	799	>650
Catox Out (T ₂)	٥F	927	600 - 650
Heat Ex (T ₃)	٥F	561	300 - 400
Flow	SCFM	-78	<300
LEL	%	14	5-15

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	- 0,40" WC
PI – 1	"WC (vacuum)	2.25" WC
TI – 1	۰F	36'F
FE-2	"WC	0,40 "WC

FID FLAME FID FLAME OUT @ INF SCREENING, ALSO FLAME OUP FID Measurements @ VOC SLREENING OF SVE WELLS 12 + 13. FID WOULD NOT RESTART AFTER LAST FLAM OUT @SVE-12 HOC SCREENING.

Location	Time		eading om)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold	NO RE	ADINC	0		a service services	
SVE - 13	1315-HRS	*> 633	3 PPM	4	0.00"	0,100 "
SVE - 12	1320-1845			4	0,50"	0.010 "
SVE - 11	1308	NO FZ		4	1.20"	0,005 "
SVE - 10	1305	1		4	1.00"	0,007 "
SVE - 09	1300			5	0.00"	0,010"
Eastern manifold	NO READS	NG I	NO FID			
SVE - 01	1339			6	0,00"	0.007"
SVE - 03	1344	14 9766	Conception	Se apple sent	0.50"	0.015"
SVE - 05	1343	N.57.71		e e sua ll'a cese caste	0.00"	0.007"
SVE - 07	1341			6	0,00 11	0.009 "
SVE - 08	1341	in es	1 Same	OV T CHAMBERS	1.75"	0.001 "
SVE - 06	1340	and -	See. 1 . 15	le	0,50"	0,006 "
SVE - 04	1340	- C		6	Bit 1,00"	0.005"
SVE - 02	01-1	a comp	12	Care La Maria	12.0" - BROKEN	0.007"
SVE Influent	1250	* > 633	SPPM			
SVE Effluent	1235	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 PPM			

Influent Sample ID: TNF- 010920 Influent Sample Time: 1250 - NR5

1.0 + 0.6

+ Recorder

Effluent Sample ID: EFF - 010920 Effluent Sample Time: 1235 HRS

Field Representative (Print and Sign): C. Husen

Date of Visit: 01-09-2020

G. KLOCKEMAN George Hagan

1 of 2

AS System Monthly Inspection Log, Kelly Moore. Date: <u>6/-09-2020</u> Visual/Audio Inspection

Item	Inspected (Y/N)		Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	N	IA	942
Regenerative Blower			(Auto / Hand / Off)
Heat Exchanger		1	(Auto / Hand / Off)
Pressure Gauges/Flow Meters		2	+12
Vent Valve Status	-1015	4	ar.

System Gauge Readings

Item	Units	Reading	g Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	NA	
PI – 3	psi		0 - 30
TI - 3	٥F	2 Color	150 - 200

After Heat Exchanger

Item	Units	Reading	Operating Range
Hour Meter Heat Exchanger	Hour's / Minutes	NA	
PI – 4	psi		0 - 30
TI – 4	۰F	+	150 - 200

Air Flow Monitoring

01 09 2020

Location	ті	ime	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS - 1	N	A	1 35 10 13 14 14 14 14 14 14 14 14 14 14 14 14 14		
AS – 2	Mar B			19 19 19 19 2 4	
AS – 3	5.65			12.1	1
AS – 4	ч.				
AS – 5		L	35		

Additional Notes. System (CATOK) RESTART AFTER NEW CATALYST CELL + SEAL ON 1-7-20
RESTART CATOR 1-8-20 AFTER SER SET OVERNIGHT, ADJUST & MONITORED FOR VOL'S +0,E,
1-9-20, SVE-CATOR OPERATION CARRINAL, MONITOR VOL'S FOR DE, FID KEPT SAUTTING
DOWN, DESTRUCTION EFFERINCY + VOC VALUES WARNOW, COLECTED JAN-2020
SUS VAPOR SAMPLES & DELZUERED TO LAB. SYSTEM (CATOR) DATA READ + RECORDED
AIR SPAREGE System OFF UNTIL WE KNOW (CATOX) DE.
CATOX OPERATIONAL COUR DEPARTURE.
MAY 25 2 5

Field Representative (Print and Sign): Drong C Hoegan

SVE System Monthly Inspection Log. Kelly Moore. Date: 2-7-20

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA Condition (Cracks, leaks, non-operational Inspected Item (Y/N) gauges, etc.) Above Ground Piping yes Control Pump (Regenerative Blower) (On / Off) izes ON yes Entrainment Pump (Transfer Pump) (Auto / Hand / Off) Auto Pressure Gauges/Flow Meters jes Knockout Tank (record level) % full es lens Knockout Water Tote (record level) % full 800 30 allon **Dilution Valve Status** Clas 100 **Recirculation Valve Status** yes Close 70

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	3732	and the second second
Catox In (T1)	٥F	666'F	>650
Catox Out (T ₂)	٥F	621 F	600 - 650
Heat Ex (T ₃)	٥F	370 F	300 - 400
Flow	SCFM	154	<300
LEL	%	6	5-15

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	0.009" on 16555F
PI – 1	"WC (vacuum)	16"
TI – 1	٥F	46'F
FE-2	"WC	1.4 11

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold	1342ths	218 889			
SVE - 13	1352	116 PPM	2	0.75"	0+0101
SVE - 12	135000	322. PPM	7	1,00	0.009"
SVE - 11	13491145	124, PPM	2	1.25"	0:0101
SVE - 10	1347 -	271 PPM	7	15"	0,0094
SVE - 09	1345 Ans	6 PPM	1012 Lat	0.0 11	6,0104
Eastern manifold	1411 And	220 PPM			
SVE - 01	1406 42	0.8 PPM	2	0,01	0.008"
SVE - 03	1407 110	624 PPM	7	12.25"	0,009"
SVE – 05	1409 40	185 APM	7	12.25"	0,009"
SVE - 07	HOSTHS	4.6 PPM	2	0,04	0,009"
SVE – 08	1404 ALS	2.00 999	d	11,5"	0,0034
SVE - 06	1403 100	MARO,E	2	3"	6,0099
SVE - 04	1402 ma	15,5 PPM	2	3,75"	0,008
SVE - 02	1401 Hrs	10.5 PPM	2	8,25	0,008"
SVE Influent	1311	373 PPM			LA PLD.
SVE Effluent	1300	6.6 PPM	> DE.CA	101×1, V	

KLOCKE MAN

GAVEN

Influent Sample ID: NE02072020

Effluent Sample ID: EFF_02010020 Effluent Sample Time: 1302-

Date of Visit: 02/07-2020

Field Representative (Print and Sign):

1 of 2

AS System Monthly Inspection Log, Kelly Moore. Date: <u>02-07-20</u> Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	yes	
Regenerative Blower	yes	(Auto) Hand / Off)
Heat Exchanger	izes	(Auto / Hand / Off)
Pressure Gauges/Flow Meters	yes	
Vent Valve Status	yes	

System Gauge Readings

Item	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	2213.4	His min.
PI – 3	psi	12.5 PSX	0 - 30
TI – 3	٥F	193 E	150 - 200

After Heat Exchanger

Item	Units	Reading	Operating Range	
Hour Meter Heat Exchanger	Hour's / Minutes	2213.8	this.	
PI-4	psi	9.5 PSI	0 - 30	
TI – 4	٥F	72'F	150 – 200	

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS – 1	1418 the	20% open	3.5	6.5
AS – 2	1418 His	20% open	3.0	5.5
AS – 3	1419 Hrs	20% open	3:5	6.0
AS - 4	1720 Hus	20% open	3.5	6.0
AS – 5	1420 ths	20% open	3.5	6.0

Additional Notes.

CAT CELL 1-29-2020 repl Woold not work today 133 pom mit lowly Jde dilution Freduced a our Activated Were 797 ell iciencies Via FID Saara dala 60 isted of Tems read -recorder Dru Gaven te @ 1500 01 they an t Bloc man Lab. Field Representative (Print and Sign): George Obegan 2020 Date of Visit: 🎗

SVE System Monthly Inspection Log. Kelly Moore. Date: 2-14-2020

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	Jes	
Control Pump (Regenerative Blower)	yes 1	(On / Off)
Entrainment Pump (Transfer Pump)	yes	(Auto) Hand / Off)
Pressure Gauges/Flow Meters	Tes	
Knockout Tank (record level)	10	% full
Knockout Water Tote (record level)	30	% full
Dilution Valve Status	100%. cla	sed
Recirculation Valve Status	yes	open

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	3897	
Catox In (T1)	٥F	665	>650
Catox Out (T2)	٥F	602	600 - 650
Heat Ex (T ₃)	٥F	367	300 - 400
Flow	SCFM	198.	<300
LEL	%	03	5-15

Item	Units	Adjusted allfour
FE – 1	"WC G	HOSEFM or . OIN
PI – 1	"WC (vacuum)	-16" WE 20.5
TI-1	٥F	40°F
FE-2	"WC	17050FM10.01

FID Measurements PID CALIBRATED TO 100 APM HEXANE G.H.

Location	Time	PTD FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure ("WC)
Western Manifold	11:05	33.4			
SVE – 13	1104	1.2 0000	- 2 m	0.75"	,009"
SVE - 12	1102	58.7	7	1.511	.010"
SVE - 11	11:00	5.5	2	1 "	,0104
SVE - 10	1058	35.2	7	16"	.010"
SVE - 09	1055	1.9	- 2	-	.0104
Eastern manifold	1137	13,5 PPM		The second s	
SVE - 01	11:17	3.2	2	Ð	.007"
SVE - 03	1126-44	19.8	7	1411	.0071
SVE - 05	11:24	50	- F.	14.5"	.667"
SVE - 07	11:20	510	2707	0	· 007"
SVE - 08	1128-14	5.2	1 2 - 1 - 2 - 6 - 2 - 6 - 1 C	13"	. 008"
SVE - 06	112944	216	2	1 **	.008"
SVE - 04	113245	13	2	50	.007
SVE - 02	1133 #1	1.1	2	10.5"	.007
SVE Influent	1014	55 ppd			
SVE Effluent	1011	1.3 pp M		States to state the	

Influent Sample ID: 1NF-02142020 Influent Sample Time: 10:23 Effluent Sample ID: EFF_01142020 Effluent Sample Time: 10:26

Field Representative (Print and Sign): (nation Klockeman Date of Visit: 2-14-2020

AS System Monthly Inspection Log, Kelly Moore. Date: 2-14-20 Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	ч	
Regenerative Blower	Y	(Auto) Hand / Off)
Heat Exchanger	ů,	(Auto/ Hand / Off)
Pressure Gauges/Flow Meters	Ň	1
Vent Valve Status	u.	open gol.

System Gauge Readings

Item	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	2377	5
PI – 3	psi	11.5	0 - 30
TI – 3	°F	186	150 - 200

Item	Units	Reading	Operating Range
Hour Meter Heat Exchanger	Hour's / Minutes	2378	
PI – 4	psi	10	0 - 30
TI – 4	٥F	68	150 - 200

Air Flow Monitoring

Location			Pressure (psi)	Air Flow (SCFM)
AS – 1	1135-163	20% open	3.5	6.5
AS – 2		1	3.0	5.5
AS – 3			3.5	6.0
AS – 4		5 C	3.5	10.0
AS – 5	2	L	3.5	6.0

Additional Notes.

is flow to a OSCFM Ke-look The debruary 2020 Syster Recorded System data sau es Valor 2. Hagan 1

Field Representative (Print and Sign): Start VlockemanDate of Visit: 2-14-2020

SVE System Monthly Inspection Log. Kelly Moore. Date: 02-21-20

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	4	0
Control Pump (Regenerative Blower)	3	(On/ Off)
Entrainment Pump (Transfer Pump)	4	(Auto / Hand / Off)
Pressure Gauges/Flow Meters	y	
Knockout Tank (record level)	3	% full
Knockout Water Tote (record level)	Z	% full and an 98 gel 40%. Jul
Dilution Valve Status	y	8-0-8-0
Recirculation Valve Status	4	

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

CATOX Screen Readings

	1		Operating	Item	Units	Reading
Item	Units	Reading	Range	FE – 1	"WC	0.013"
Hour Meter	H-M	4053				0,015
Catox In (T1)	٥F	822 F	>650	PI – 1	"WC	6"
Catox Out (T ₂)	٥F	726 F	600 - 650		(vacuum)	
Heat Ex (T ₃)	٥F	450'P	300 - 400	TI – 1	°F	48'F
Flow	SCFM	105	<300	FE-2	"WC	.5
LEL	%	NIA	5-15			Mow operati

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	0.013"
PI – 1	"WC (vacuum)	6"
TI – 1	٥F	48'F
FE-2	"WC	.5

FID Measurements

Location	Time				y Valve Position (record notch)				cuum WC)	Pr	ferential essure ''WC)
Western Manifold	N	I.A-	N	A							
SVE - 13					NI	A	1	A	N,	A	
SVE – 12											
SVE - 11								2.1			
SVE - 10			1.1		_					1-	
SVE - 09											
Eastern manifold											
SVE - 01										. 5	
SVE - 03	1	1	Sugar 1		7.011						
SVE - 05											
SVE - 07											
SVE - 08	100							1			
SVE - 06				1					-		
SVE - 04				-							
SVE - 02			TUA	MALTO FIP		1	1.0	4		t.	
SVE Influent		1	4.0	19.5		Since and the					
SVE Effluent		1	2.2	15.3	Country of the	Te - month	1 anna		Ste all		

Influent Sample ID: FNF_ 02212020 Influent Sample Time: _____1335

Effluent Sample ID: EFF_02212020 Effluent Sample Time: 1330

Field Representative (Print and Sign):

veman

Date of Visit: 2.21-20

1 of 2

AS System Monthly Inspection Log, Kelly Moore. Date: 2-21-20 Visual/Audio Inspection

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	y	5
Regenerative Blower	ų	(Auto / Hand Off)
Heat Exchanger	4	(Auto / Hand Off)
Pressure Gauges/Flow Meters	и	
Vent Valve Status	4	

System Gauge Readings

Be	efore Hea	t Exchange	r	After	Heat Exc	changer	
Item	Units	Reading	Operating Range	Item	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	2497		Hour Meter Heat Exchanger	Hour's / Minutes	2497	
PI – 3	psi	NA	0 - 30	PI – 4	psi	NA	0 - 30
TI – 3	٥F	and a part	150 - 200	TI – 4	°F	1	150 - 200

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS - 1	NJA	NIA	NIA	NIA
AS-2				
AS – 3				
AS – 4				
AS – 5	2	1	1	1 L

Additional Notes. At Sparge compressor Shut down 2/19/20 - it is Vibrating Badley & leaking 02. 2.21-20 BECKWITH & KUFFEL ONSITE COBOO HIE The removed the Sporge to be repaired or replaced, SVE-CATOR of Cour arrived, High Water Compresson K.O. SVE-CATOK, Brought To Temp. Screened VOC'S Kesterte Collected a second set of influent Via DE Bellow 30% 2-FID'S LEL Sanger is Shutdown SUE-CATCK OPER broken, LEL VALUE 71101, By 10 passed D. Hogen _ Date of Visit: $\frac{2}{21}$ 20 Field Representative (Print and Sign):_ G. Klockeman

SVE System Monthly Inspection Log. Kelly Moore. Date: 3-17-2020

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Condition (Cracks, leaks, non-operational Inspected Item (Y/N)gauges, etc.) Above Ground Piping Jes Control Pump (Regenerative Blower) (On/Off) 25 (Auto / Hand / Off) Entrainment Pump (Transfer Pump) yes Pressure Gauges/Flow Meters Jes Knockout Tank (record level) % full yes Knockout Water Tote (record level) Je3 % full **Dilution Valve Status** yes 100 **Recirculation Valve Status** 85) liges

CATOX Screen Readings

Units	Reading	Operating Range
H-M	4056	
٥F	659	>650
٥F	603	600 - 650
٥F	370	300 - 400
SCFM	225	<300
%	-	5-15
	H-M °F °F SCFM	H-M 4056 •F 659 •F 603 •F 370 SCFM 225

correct with

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	0,015 "
PI – 1	"WC (vacuum)	12,5" 420
TI – 1	٥F	44° F
FE-2	"WC	1,2"wc

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold	1127	13.2			
SVE - 13	1114	2.0	02 # G	1	.014"
SVE - 12	1117	2,5	1	10.5"	.015"
SVE - 11	1119	0.8	Ce M 6	1"	,014"
SVE - 10	1122	59.6	1	10.5"	·015"
SVE - 09	1124	2.1	German 6	Q	,014"
Eastern manifold	1163	0.111			
SVE - 01	1142	0.5	6	O	-021"
SVE - 03	1047	90.5	37 57 +1274	9n	,015"
SVE - 05	1149	325.0	. No in	12"	,014"
SVE - 07	1151	12.1	1	1.2"	.015"
SVE - 08	1139	0.9	6	Cit 10 19.5"	. 014 "
SVE - 06	1138	0.6	6	2.4"	-013"
SVE - 04	1135	2.3	6	2.5"	.013"
SVE - 02	1133	1.3	6	2.6"	.013"
SVE Influent	1246	100.9			
SVE Effluent	1243	7.6			

Influent Sample ID: <u>INF. 03172020</u> Influent Sample Time: <u>13:09</u>

Effluent Sample ID: EFF-03172020 Effluent Sample Time: 12154

Field Representative (Print and Sign): Gravin Wockeme Date of Visit: 3-17-2020

INFLUENT + EFFLUENT SAMPLES WERE COLLECTED VIA 1. LITER SUMMAVESSELS. ANALYSIS REQUEST IS BTEX BY TO-15 + TPH-G AS HEXANE.

AS System Monthly Inspection Log, Kelly Moore. Date: 3-17-2020 Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)	
Above Ground Piping	Jes		
Regenerative Blower	pair	(Auto / Hand / Off)	
Heat Exchanger	yes	(Auto / Hand / Off))	
Pressure Gauges/Flow Meters	Jes		
Vent Valve Status	7	Planer out for repair	

System Gauge Readings

Before Heat Exchanger				After			
Item	Units	Reading	Operating Range	Item	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	2497		Hour Meter Heat Exchanger	Hour's / Minutes	24977	
PI – 3	psi		0 - 30	PI – 4	psi	-	0 - 30
TI – 3	°F		150 – 200	TI – 4	٩F	Manuar -	150 - 200

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS - 1	17.4	CON	11	
AS - 2	Unit	offlive	, blower	TUO
AS – 3	6-6			
AS – 4	100 1	Lepair		
AS – 5		1		

Additional Notes.

CATOX RESTART. MARCH 2020 SySTEM VAPOR SAMPLES COLLECTED.

RECORDED ALL SYSTEM'S DATA. SVE . CATOX OPERATIONAL COUR DUPARTURE.

2460

Field Representative (Print and Sign): Town Plocken Date of Visit: 3-17-2020

Co. Hugan

SVE System Monthly Inspection Log. Kelly Moore. Date: 4-13-2020

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	yes	
Control Pump (Regenerative Blower)	Jes	(On Off)
Entrainment Pump (Transfer Pump)	yes	(Auto / Hand / Off)
Pressure Gauges/Flow Meters	yes	C C
Knockout Tank (record level)	34033	% full 337. toll
Knockout Water Tote (record level)	5-40 54	% full . 40% full
Dilution Valve Status	-	Fully Closed
Recirculation Valve Status	yes	

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	4703	
Catox In (T1)	٥F	660	>650
Catox Out (T2)	٥F	626	600 - 650
Heat Ex (T ₃)	٥F	398	300 - 400
Flow	SCFM	230	<300
LEL	%		5-15

LONOX Loorking

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	0.015"
PI – 1	"WC (vacuum)	6"
TI'- 1	٥F	52°F
FE-2	"WC	3.5"

1 of 2

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure ("WC)
Western Manifold	X	1 S	and the second second		
SVE - 13			3	1	1 32
SVE - 12				-	
SVE - 11					
SVE - 10		NO DATA	+ COLLECTED	TODAY	
SVE - 09			1		
Eastern manifold		/			
SVE - 01		/			
SVE - 03	200		e stage i		
SVE - 05					
SVE - 07	~ /				
SVE - 08	X	12.18	200 - 10 ⁰⁰ - 10		/
SVE - 06					
SVE - 04			and the second second second second		×
SVE - 02		County 1	1. 1. 1. 25. M. P.		1
SVE Influent	1347	245			
SVE Effluent	1345	5.0		Contral 228 2	

Effluent Sample ID: _ Influent Sample ID: _ Influent Sample Time: Effluent Sample Time: Date of Visit: 4-13-2020

Gavin Klockeman

Field Representative (Print and Sign):



AS System Monthly Inspection Log, Kelly Moore. Date: <u>4-13-2020</u> Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	Jeg	
Regenerative Blower	yes	(Auto / Hand / Off)
Heat Exchanger	Jes	(Auto/ Hand / Off)
Pressure Gauges/Flow Meters	yes	print al
Vent Valve Status	4.05	A

System Gauge Readings

Item	Units	Reading	Operating Range
Hour Meter Sparge Blower	Hour's / Minutes	2498.	Hours
Pl – 3	psi	11	0 - 30
TI – 3	٥F	25	150 - 200

After Heat Exchanger

Item	Units	Reading	Operating Range
Hour Meter Heat Exchanger	Hour's / Minutes	2499-	Hours
PI – 4	psi	6	0 - 30
TI – 4	°F	BO	150 - 200

Air Flow Monitoring

to from horizontal

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS – 1	1403	200	2.5	10
AS – 2	1403	200	2.0	9.6
AS – 3	1404	° 05	2.5	9.5
AS – 4	1404	200	2.5	9.4
AS – 5	1405	200	2.0	9.5

Additional Notes.

)E= 98%; Air Sparge reinstalled and system up and running. Saw a significant increase in influent concentrations. Adjust belt to avoid wear. Pumped water into knockout tank to test float sensors. Worked properly. LEL sensor still reads "110".

Field Representative (Print and Sign): Date of Visit: 4-13-2020 Gavin Klockenan Curry Hayan IHA.

SVE System Monthly Inspection Log. Kelly Moore. Date: 4-20-2020

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	yes	
Control Pump (Regenerative Blower)	ses	(On/ Off)
Entrainment Pump (Transfer Pump)	Jes	(Auto / Hand / Off)
Pressure Gauges/Flow Meters	Jes	
Knockout Tank (record level)	Jes	% full 30 70
Knockout Water Tote (record level)	Jes	% full 40 70
Dilution Valve Status	yes	Closed 100%
Recirculation Valve Status	Jes	1

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	4854	
Catox In (T1)	٥F	696	>650
Catox Out (T2)	٥F	658	600 - 650
Heat Ex (T ₃)	٥F	413	300 - 400
Flow	SCFM	65	<300
LEL	%		5-15

LABROKEN

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	0.011"
PI – 1	"WC (vacuum)	4.5"
TI – 1	٥F	50°F
FE-2	"WC	1.8"

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure ("WC)
Western Manifold	10:07	23.8			
SVE – 13	10:05	25.8	4	1.5"	"510.
SVE - 12	10:03	26,2	1	2"	-011"
SVE - 11	10:02	8.0	5	1.,	.011"
SVE - 10	9:59	73.0	1	3.5"	.010"
SVE - 09	9:58	2.7	5	.0	- 011 -
Eastern manifold	10:34	37.2			
SVE - 01	10:32	5.0	6	-0-	.012"
SVE - 03	10:30	10.9	and the second sec	1.25.	. 012 "
SVE - 05	10:28	94.6	Ň	3.0"	.012~
SVE - 07	10:25	5.3	1	3.6"	-013"
SVE - 08	10:23	2.2	6	3.5"	. 012"
SVE - 06	10:22	2.7	6	-0-	.012"
SVE - 04	10:20	5.9	6	1,5"	.0114
SVE - 02	10:16	7.2	6	2.51	.012"
SVE Influent	915	98.9			
SVE Effluent	915	4.8			

Influent Sample ID: INF.4_20_2020 Influent Sample Time: 9:34

Effluent Sample ID: EFF-4-20-2020 Effluent Sample Time: 9:24

Field Representative (Print and Sign)

Gravin Hockemen Cronge Hagan IHA

1 of 2

AS System Monthly Inspection Log, Kelly Moore. Date: 4-20-2020 Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)	
Above Ground Piping	ises		
Regenerative Blower	yes	Auto / Hand / Off)	
Heat Exchanger	yes	(Auto / Hand / Off)	GK
Pressure Gauges/Flow Meters	yes	After the georges have share we	ant the
Vent Valve Status	yes		Here

System Gauge Readings

Be	efore Hea	t Exchange	r	After
ltem	Units	Reading	Operating Range	Item
Hour Meter Sparge Blower	Hour's / Minutes	2649		Hour Meter Heat Exchanger
PI – 3	psi	9	0 - 30	PI – 4
TI – 3	۰F	2056	150 – 200	TI – 4

After Heat Exchanger

Item	Units	Reading	Operating Range
Hour Meter Heat Exchanger	Hour's / Minutes	2649	
PI – 4	psi	8.5	0 - 30
TI – 4	٥F	73°F	150 – 200

Air Flow Monitoring

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS – 1	9:53	200	3.5	10
AS – 2	9:54		3.0	9.5
AS – 3	9:54		3.5	9.5
AS – 4	9:54		3.5	9.5
AS – 5	9:55	-	3.0	9,5

Additional Notes.

A5-5 very dirty. DE= 95.170. getting issues regarding inspection. Collect full round April inspection. Conducted house keepive tasks amples collected 1015 canister USING

Field Representative (Print and Sign):

Gravin Klockewan Gronge Hagan IHIT

SVE System Monthly Inspection Log. Kelly Moore. Date: 5-18-2020

Visual/Audio Inspection. Located at; 5400 Airport Way South Seattle, WA

Item	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	yes	
Control Pump (Regenerative Blower)	yes	(On / Off)
Entrainment Pump (Transfer Pump)	yes	(Auto / Hand / Off)
Pressure Gauges/Flow Meters	405	<u> </u>
Knockout Tank (record level)	Yes	% full 40%
Knockout Water Tote (record level)	yes	% full 40%
Dilution Valve Status	yes	Fully closed
Recirculation Valve Status	yes	Actusted to set stow @
		40% open GK

CATOX Screen Readings

Item	Units	Reading	Operating Range
Hour Meter	H-M	5525	
Catox In (T1)	٥F	687	>650
Catox Out (T2)	٥F	657	600 - 650
Heat Ex (T ₃)	۰F	419	300 - 400
Flow	SCFM	138	<300
LEL	%	NOTIN	5-15
0	1	usegh	

System Gauge Readings

Item	Units	Reading
FE – 1	"WC	-017"
PI – 1	"WC (vacuum)	6,5"H20
TI – 1	٥F	55
FE-2	"WC	138 SCFM

@ 21. 5 Amps on Mo

FID Measurements

Location	Time	FID Reading (ppm)	Valve Position (record notch)	Vacuum (''WC)	Differential Pressure (''WC)
Western Manifold	929	4.2			
SVE – 13	927	3-9	- H	2	.017
SVE - 12	926	3.4	7	2	.017
SVE – 11	924	3-2	3		,017
SVE - 10	923	24.3	7	3	.017
SVE - 09	921	1.4	3	0	016
Eastern manifold	949	45.9			
SVE - 01	947	2.7	2	0	F10.
SVE - 03	945	49.8	7	4	.017
SVE - 05	942	85.5	7	3	,017
SVE - 07	940	4.6	7	9.5	-017
SVE - 08	938	1.3	2	4.5	.018
SVE - 06	937	2.2	2.	2	.019
SVE - 04	935	26.8	2 TO 5	1.5	-02
SVE - 02	933	0.6	2	2.5	:016
SVE Influent	Stella	6.2	D.E. CALCU	ATED C 91	and the second
SVE Effluent	Bonny	0.3	Sale in the second second		Seattle seattle

Influent Sample ID: 18-2020 Influent Sample Time: 1014

Effluent Sample ID: CFF- 9-18-2020 Effluent Sample Time: ______

Field Representative (Print and Sign):

_ Date of Visit: 5-18-2020 Graving Klockeman - IHA. -Hagan

AS System Monthly Inspection Log, Kelly Moore. Date: 5-18-2020 Visual/Audio Inspection

ltem	Inspected (Y/N)	Condition (Cracks, leaks, non-operational gauges, etc.)
Above Ground Piping	yes	-
Regenerative Blower	Jes	(Auto Hand / Off)
Heat Exchanger	yes	(Auto / Hand / Off)
Pressure Gauges/Flow Meters	yes	
Vent Valve Status	yes	OPEN 60%.

System Gauge Readings

	Be	efore Heat	t Exchange	r	- 1
	Item	Units	Reading	Operating Range	lte
	Hour Meter Sparge Blower	Hour's / Minutes	3320		Ho Me He Exch
	Pl – 3	psi	9	0 - 30	PI
Į	TI – 3	٥F	220	150 – 200	TI

Item	Units	Reading	Operating Range
Hour Meter Heat Exchanger	Hour's / Minutes	3320	
PI-4	psi	9	0 - 30
TI – 4	°F	76	150 - 200

Air Flow Monitoring

T

Location	Time	Valve Position (record appx angle)	Pressure (psi)	Air Flow (SCFM)
AS – 1	965	200	2.5	9.7
AS – 2	946		1,75	9.5
AS – 3	906	and the second	2	9.5
AS – 4	906		2.5	9.25
AS – 5	906	the d	2	9.5

Additional Notes. ALE FLOW GAUGE. black build up compare to AS-1-PAS-4. SVE4 to position)/0 opened P55 water in vacuum gages on SVE pipes. SVE5 gage C Noise coming from poleement. heart ex. Sands need like something be coming loose morected Jas mary pelt and conduit see any issues. Also, we replaced and and chart peper for CATOX.

Field Representative (Print and Sign)

Grouin Klockenien Ground Hagan - JHA.



Appendix D

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 27, 2020

John Long, Project Manager Wood Environment & Infrastructure Solutions, Inc. One Union Square 600 University Street, Suite 600 Seattle, WA 98101

Dear Mr Long:

Included are the results from the testing of material submitted on March 17, 2020 from the Kelly Moore, F&BI 003279 project. There are 6 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Color

Michael Erdahl Project Manager

Enclosures WEI0327R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 17, 2020 by Friedman & Bruya, Inc. from the Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 003279 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Wood Environment & Infrastructure Solutions
003279 -01	EFF_03172020
003279 -02	INF_03172020

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date Received:03Date Collected:03Date Analyzed:03Matrix:Ai	FF_03172020 \$/17/20 \$/17/20 \$/24/20 r \$/m3	Clien Projec Lab I Data Instru Opera	ct: D: File: ument:	Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 003279 003279-01 1/2.7 032329.D GCMS7 bat
	%	Lower	Upper	
Surrogates:	Recovery:	Limit:	Limit:	
4-Bromofluorobenzene	101	70	130	
	Concent	ration		
Compounds:	ug/m3	ppbv		
2-Propanol	<23	<9.4		
Benzene	<0.86	< 0.27		
Toluene	<0.80 <51	<13		
Ethylbenzene	<1.2	<0.27		
m,p-Xylene	<2.3	< 0.54		
o-Xylene	<1.2	< 0.27		
Naphthalene	21	4.0		
Gasoline Range Organ		<540		

ENVIRONMENTAL CHEMISTS

Client Sample ID:INF_03172020Date Received:03/17/20Date Collected:03/17/20Date Analyzed:03/24/20Matrix:AirUnits:ug/m3	Clien Projec Lab I Data Instru Opera	ct: D: File: ument:	Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 003279 003279-02 1/33 032330.D GCMS7 bat
%	Lower	Upper	
Surrogates: Recovery:	Limit:	Limit:	
4-Bromofluorobenzene 104	70	130	
Concer	itration		
Compounds: ug/m3	ppbv		
2-Propanol <280	<120		
Benzene <11	<3.3		
Toluene <620	<160		
Ethylbenzene 22	5.2		
m,p-Xylene 75	17		
o-Xylene 19	4.4		
Naphthalene 16	3.0		
Gasoline Range Organics 135,000	33,000		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Collected: Date Analyzed: Matrix: Units:	Method Blank Not Applicable Not Applicable 03/23/20 Air ug/m3		ect: ID: File: rument:	Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 003279 00-0716 mb 032311.D GCMS7 bat
	%	Lower	Upper	
Surrogates:	Recovery:	Limit:	Limit:	
4-Bromofluorobenz	ene 105	70	130	
	Concent	ration		
Compounds:	ug/m3	ppbv		
0 D	0.0	0 5		
2-Propanol	<8.6	<3.5		
Benzene	< 0.32	< 0.1		
Toluene	<19	<5		
Ethylbenzene	< 0.43	< 0.1		
m,p-Xylene	<0.87	<0.2		
o-Xylene	< 0.43	< 0.1		
Naphthalene	< 0.26	< 0.05		
Gasoline Range Or	ganics <820	<200		

ENVIRONMENTAL CHEMISTS

Date of Report: 03/27/20 Date Received: 03/17/20 Project: Kelly Moore, F&BI 003279

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 003260-04 1/2.7 (Duplicate)

	Reporting	Sample	Duplicate	RPD
Analyte	Units	Result	Result	(Limit 30)
2-Propanol	ug/m3	<23	<23	nm
Benzene	ug/m3	14	14	0
Toluene	ug/m3	<51	<51	nm
Ethylbenzene	ug/m3	<1.2	<1.2	nm
m,p-Xylene	ug/m3	<2.3	<2.3	nm
o-Xylene	ug/m3	<1.2	<1.2	nm
Naphthalene	ug/m3	< 0.71	< 0.71	nm

Laboratory Code: Laboratory Control Sample

	Percent					
	Reporting	Spike	Recovery	Acceptance		
Analyte	Units	Level	LCS	Criteria		
2-Propanol	ug/m3	33	94	70-130		
Benzene	ug/m3	43	95	70-130		
Toluene	ug/m3	51	92	70-130		
Ethylbenzene	ug/m3	59	94	70-130		
m,p-Xylene	ug/m3	120	98	70-130		
o-Xylene	ug/m3	59	97	70-130		
Naphthalene	ug/m3	71	113	70-130		

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$ - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

L							*		d by:	Received by:	Fax (206) 283-5044
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

January 14, 2020

John Long, Project Manager Wood Environment & Infrastructure Solutions, Inc. One Union Square 600 University Street, Suite 600 Seattle, WA 98101

Dear Mr Long:

Included are the results from the testing of material submitted on January 9, 2020 from the Kelly Moore, F&BI 001117 project. There are 4 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Colo

Michael Erdahl Project Manager

Enclosures WEI0114R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 9, 2020 by Friedman & Bruya, Inc. from the Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 001117 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Wood Environment & Infrastructure Solutions
001117 -01	EFF-010920
001117 -02	INF-010920

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/14/20 Date Received: 01/09/20 Project: Kelly Moore, F&BI 001117 Date Extracted: 01/10/20 Date Analyzed: 01/10/20

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported	as	mg/m ³
-------------------------	----	-------------------

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Ethyl <u>Benzene</u>	Total <u>Xylenes</u>	Gasoline <u>Range</u>	Surrogate (<u>% Recovery</u>) (Limit 50-150)
EFF-010920 001117-01	<0.1	3.5	5.8	12	1,400	99
INF-010920 001117-02 1/5	< 0.5	<1	38	77	8,200	102
Method Blank 00-9 MB2	< 0.1	< 0.2	< 0.2	<0.6	<10	81

ENVIRONMENTAL CHEMISTS

Date of Report: 01/14/20 Date Received: 01/09/20 Project: Kelly Moore, F&BI 001117

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code:	001069-04 (Dupli	cate)		
	Reporting	Sample	Duplicate	RPD
Analyte	Units	Result	Result	(Limit 20)
Benzene	mg/m ³	< 0.1	< 0.1	nm
Toluene	mg/m ³	< 0.2	< 0.2	nm
Ethylbenzene	mg/m ³	< 0.2	< 0.2	nm
Xylenes	mg/m ³	<0.6	<0.6	nm
Gasoline	mg/m ³	<10	<10	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/m ³	5.0	91	70-130
Toluene	mg/m ³	5.0	88	70-130
Ethylbenzene	mg/m ³	5.0	89	70-130
Xylenes	mg/m ³	15	89	70-130
Gasoline	mg/m^3	100	115	86-144

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

February 26, 2020

John Long, Project Manager Wood Environment & Infrastructure Solutions, Inc. One Union Square 600 University Street, Suite 600 Seattle, WA 98101

Dear Mr Long:

Included are the results from the testing of material submitted on February 21, 2020 from the Kelly Moore, F&BI 002315 project. There are 4 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Colo

Michael Erdahl Project Manager

Enclosures WEI0226R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 21, 2020 by Friedman & Bruya, Inc. from the Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 002315 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Wood Environment & Infrastructure Solutions
002315 -01	EFF_02212020
002315 -02	INF_02212020

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/26/20 Date Received: 02/21/20 Project: Kelly Moore, F&BI 002315 Date Extracted: 02/24/20 Date Analyzed: 02/24/20

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx

Results Reported	as	mg/m ³
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<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Ethyl <u>Benzene</u>	Total <u>Xylenes</u>	Gasoline <u>Range</u>	Surrogate (<u>% Recovery</u>) (Limit 50-150)
EFF_02212020 002315-01	< 0.1	< 0.2	< 0.2	<0.6	<10	79
INF_02212020 002315-02	<0.1	< 0.2	< 0.2	<0.6	33	82
Method Blank 00-381 MB	<0.1	< 0.2	< 0.2	<0.6	<10	82

ENVIRONMENTAL CHEMISTS

Date of Report: 02/26/20 Date Received: 02/21/20 Project: Kelly Moore, F&BI 002315

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code:	002315-01 (Dupli	cate)		
	Reporting	Sample	Duplicate	RPD
Analyte	Units	Result	Result	(Limit 20)
Benzene	mg/m ³	< 0.1	< 0.1	nm
Toluene	mg/m ³	< 0.2	< 0.2	nm
Ethylbenzene	mg/m ³	< 0.2	< 0.2	nm
Xylenes	mg/m ³	<0.6	<0.6	nm
Gasoline	mg/m ³	<10	<10	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/m ³	5.0	94	70-130
Toluene	mg/m ³	5.0	93	70-130
Ethylbenzene	mg/m ³	5.0	99	70-130
Xylenes	mg/m ³	15	95	70-130
Gasoline	mg/m ³	100	121	86-144

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

1	Ph. (206) 285-8282	ق ا		Friedman & Bruya, Inc.							INF-02212020	Eff. 02212-0210	Sample ID		Phone2068388461 Email	City, State, ZIPSeattle, wh 98101	Address of Diviversity St. Suite	Company Ward Environmented	Report To John 1	002315
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

May 1, 2020

Paul Stull, Project Manager Wood Environment & Infrastructure Solutions, Inc. One Union Square 600 University Street, Suite 600 Seattle, WA 98101

Dear Mr Stull:

Included are the results from the testing of material submitted on April 20, 2020 from the Kelly Moore, F&BI 004205 project. There are 6 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: paul.stull@woodplc.com WEI0501R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 20, 2020 by Friedman & Bruya, Inc. from the Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 004205 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Wood Environment & Infrastructure Solutions
004205 -01	INF_4_20_2020
004205 -02	EFF_4_20_2020

The TO-15 gasoline range concentrations were quantified using a single point calibration at 200 ppbv.

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Collected: Date Analyzed: Matrix: Units:	INF_4_20_2020 04/20/20 04/20/20 04/28/20 Air ug/m3	Clien Proje Lab I Data Instru Opera	ct: D: File: ument:	Wood Environment & Infrastructure Kelly Moore, F&BI 004205 004205-01 1/7.0 042732.D GCMS7 bat/MS
Surrogates: 4-Bromofluorobenz	% Recovery: ene 105	Lower Limit: 70	Upper Limit: 130	
	Concen	tration		
Compounds:	ug/m3	ppbv		
Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene Gasoline Range Org	35 <130 120 1,500 420 ganics 90,000	$ \begin{array}{r} 11 \\ <35 \\ 27 \\ 340 \\ 96 \\ 22,000 \\ \end{array} $		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Collected: Date Analyzed: Matrix: Units:	EFF_4_20_2020 04/20/20 04/20/20 04/28/20 Air ug/m3	Lab Dat Inst	ent: ject: ID: a File: crument: erator:	Wood Environment & Infrastructure Kelly Moore, F&BI 004205 004205-02 1/7.1 042731.D GCMS7 bat/MS
Surrogates: 4-Bromofluorobenz	% Recovery: ene 113	Lower Limit: 70	Upper Limit: 130	
	Concer	ntration		
Compounds:	ug/m3	ppbv		
Benzene	<2.3	< 0.71		
Toluene	<130	<35		
Ethylbenzene	<3.1	< 0.71		
m,p-Xylene	<6.2	<1.4		
o-Xylene	<3.1	< 0.71		
Gasoline Range Or	ganics <2,300	<570		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Collected: Date Analyzed: Matrix: Units:	Method Blank Not Applicable Not Applicable 04/27/20 Air ug/m3	Inst	ect:	Wood Environment & Infrastructure Kelly Moore, F&BI 004205 00-0938 mb 042711.D GCMS7 bat/MS
Surrogates: 4-Bromofluorobenz	% Recovery: ene 100	Lower Limit: 70	Upper Limit: 130	
	Concen	tration		
Compounds:	ug/m3	ppbv		
Benzene	< 0.32	< 0.1		
Toluene	<19	<5		
Ethylbenzene	< 0.43	< 0.1		
m,p-Xylene	< 0.87	< 0.2		
o-Xylene	< 0.43	< 0.1		
Gasoline Range Or	ganics <330	<80		

ENVIRONMENTAL CHEMISTS

Date of Report: 05/01/20 Date Received: 04/20/20 Project: Kelly Moore, F&BI 004205

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 004280-14 1/3.3 (Duplicate)

	Reporting	Sample	Duplicate	RPD
Analyte	Units	Result	Result	(Limit 30)
Benzene	ug/m3	<1.1	<1.1	nm
Toluene	ug/m3	<62	<62	nm
Ethylbenzene	ug/m3	<1.4	<1.4	nm
m,p-Xylene	ug/m3	<2.9	<2.9	nm
o-Xylene	ug/m3	<1.4	<1.4	nm

Laboratory Code: Laboratory Control Sample

control sumple			
		Percent	
Reporting	Spike	Recovery	Acceptance
Units	Level	LCS	Criteria
ug/m3	43	88	70-130
ug/m3	51	91	70-130
ug/m3	59	92	70-130
ug/m3	120	94	70-130
ug/m3	59	91	70-130
	Reporting Units ug/m3 ug/m3 ug/m3 ug/m3	Reporting UnitsSpike Levelug/m343ug/m351ug/m359ug/m3120	Reporting UnitsSpike LevelPercent Recovery LCSug/m34388ug/m35191ug/m35992ug/m312094

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Fax (206) 283-5044 FORMS\COC\COCTO-15_DOC	3012 16th Avenue West Seattle, WA 98119-2029 Ph. (206) 285-8282	Friedman & Bruya, Inc.							ER. 4-20-2020	INF. 4. 20- 2020	Sample Name	SAMPLE INFORMATION	Phoness 37414044 Email Paul . Stull was of the rem	City, State, ZIPS-CATUL, WA 96W	Company 1000 fine rouneuted	Report To Du
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

May 28, 2020

Paul Stull, Project Manager Wood Environment & Infrastructure Solutions, Inc. One Union Square 600 University Street, Suite 600 Seattle, WA 98101

Dear Mr Stull:

Included are the results from the testing of material submitted on May 18, 2020 from the Kelly Moore, F&BI 005221 project. There are 6 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Colo

Michael Erdahl Project Manager

Enclosures WEI0528R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 18, 2020 by Friedman & Bruya, Inc. from the Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 005221 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Wood Environment & Infrastructure Solutions
005221 -01	INF_5-18-2020
005221 -02	EFF_5-18-2020

The TO-15 gasoline range concentrations were quantified using a single point calibration at 100 ppbv.

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Collected: Date Analyzed: Matrix: Units:	INF_5-18-2020 05/18/20 05/18/20 05/21/20 Air ug/m3	Project: Lab ID: Data File: Instrument:		Wood Environment & Infrastructure Kelly Moore, F&BI 005221 005221-01 1/14 052027.D GCMS7 bat/MS
Surrogates: 4-Bromofluorobenz	% Recovery: ene 109	Lower Limit: 70	Upper Limit: 130	
Commence day	Concen			
Compounds:	ug/m3	ppbv		
Hexane	<49	<14		
Benzene	5.9	1.8		
Toluene	<260	<70		
Ethylbenzene	< 6.1	<1.4		
m,p-Xylene	<12	<2.8		
o-Xylene	< 6.1	<1.4		
Gasoline Range Or	ganics 110,000	27,000		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Collected: Date Analyzed: Matrix: Units:	EFF_5-18-2020 05/18/20 05/18/20 05/21/20 Air ug/m3		ect: ID: File: ument:	Wood Environment & Infrastructure Kelly Moore, F&BI 005221 005221-02 1/2.8 052026.D GCMS7 bat/MS
Surrogates: 4-Bromofluorobenz	% Recovery: ene 105	Lower Limit: 70	Upper Limit: 130	
Compounds:	Concentug/m3	tration ppbv		
Hexane Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene Gasoline Range Or	<9.9 <0.89 <53 <1.2 <2.4 <1.2 ganics <1,100	<2.8 <0.28 <14 <0.28 <0.56 <0.28 <280		

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Collected: Date Analyzed: Matrix: Units:	Method Blank Not Applicable Not Applicable 05/20/20 Air ug/m3	Inst	ect:	Wood Environment & Infrastructure Kelly Moore, F&BI 005221 00-1068 mb 052011.D GCMS7 bat/MS
	%	Lower	Upper	
Surrogates:	Recovery:	Limit:	Limit:	
4-Bromofluorobenz	ene 111	70	130	
	Concen	tration		
Compounds:	ug/m3	ppbv		
Hexane	<3.5	<1		
Benzene	< 0.32	< 0.1		
Toluene	<19	<5		
Ethylbenzene	< 0.43	< 0.1		
m,p-Xylene	< 0.87	< 0.2		
o-Xylene	< 0.43	< 0.1		
Gasoline Range Or	ganics <410	<100		
9	-			

ENVIRONMENTAL CHEMISTS

Date of Report: 05/28/20 Date Received: 05/18/20 Project: Kelly Moore, F&BI 005221

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 005229-01 1/7.8 (Duplicate)

	Reporting	Sample	Duplicate	RPD
Analyte	Units	Result	Result	(Limit 30)
Hexane	ug/m3	<27	<27	nm
Benzene	ug/m3	3.5	3.3	6
Toluene	ug/m3	<150	<150	nm
Ethylbenzene	ug/m3	5.9	6.1	3
m,p-Xylene	ug/m3	24	25	4
o-Xylene	ug/m3	7.8	8.0	3

Laboratory Code: Laboratory Control Sample

	Sumple		Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Hexane	ug/m3	48	93	70-130
Benzene	ug/m3	43	91	70-130
Toluene	ug/m3	51	94	70-130
Ethylbenzene	ug/m3	59	95	70-130
m,p-Xylene	ug/m3	120	100	70-130
o-Xylene	ug/m3	59	96	70-130

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

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ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

FORMS\COC\COCTO-15.DOC	Ph. (206) 285-8282	South WA 98119-2020	Friedman & Bruya, Inc.							EFE 5-18-2020	11NF 5-18-2020	Sample Name	SAMPLE INFORMATION	Phoneso37414544	City, State, ZIP Scottle, WA	Report Totaul Stuil Company 6000 Evidence when Address 600 University St. Suite 600	00522
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

June 10, 2019

Crystal Thimsen, Project Manager Wood Environment & Infrastructure Solutions, Inc. One Union Square 600 University Street, Suite 600 Seattle, WA 98101

Dear Ms Thimsen:

Included are the results from the testing of material submitted on June 4, 2019 from the Kelly Moore, F&BI 906031 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Colo

Michael Erdahl Project Manager

Enclosures WEI0610R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 4, 2019 by Friedman & Bruya, Inc. from the Wood Environment & Infrastructure Solutions Kelly Moore, F&BI 906031 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Wood Environment & Infrastructure Solutions
906031 -01	EFF-060419
906031 -02	INF-060419
906031 -03	SVE09-060419
906031 -04	SVE10-060419
906031 -05	SVE11-060419
906031 -06	SVE12-060419
906031 -07	SVE13-060419
906031 -08	SVE01-060419
906031 -09	SVE03-060419
906031 -10	SVE05-060419
906031 -11	SVE07-060419
906031 -12	SVE08-060419
906031 -13	SVE06-060419
906031 -14	SVE04-060419
906031 -15	SVE02-060419

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/10/19 Date Received: 06/04/19 Project: Kelly Moore, F&BI 906031 Date Extracted: 06/04/19 Date Analyzed: 06/05/19

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR BENZENE AND TPH AS GASOLINE **USING MODIFIED METHODS 8021B AND NWTPH-Gx**

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	Gasoline <u>Range</u>	Surrogate (<u>% Recovery</u>) (Limit 50-150)
$\underset{906031-01}{\text{EFF-060419}}$	< 0.1	20	86
INF-060419 906031-02	< 0.1	640	113
SVE09-060419 906031-03	< 0.1	440	105
SVE10-060419 906031-04 1/5	< 0.5	2,300	101
SVE11-060419 906031-05	< 0.1	660	100
SVE12-060419 906031-06 1/2	< 0.2	1,400	98
SVE13-060419 906031-07	< 0.1	760	91
SVE01-060419 906031-08	<0.1	14	85
SVE03-060419 906031-09	< 0.1	2,400	ip
SVE05-060419 906031-10 1/5	< 0.5	3,500	130

Results Reported as mg/m³

ENVIRONMENTAL CHEMISTS

Date of Report: 06/10/19 Date Received: 06/04/19 Project: Kelly Moore, F&BI 906031 Date Extracted: 06/04/19 Date Analyzed: 06/05/19

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR BENZENE AND TPH AS GASOLINE USING MODIFIED METHODS 8021B AND NWTPH-Gx Results Reported as mg/m³

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>		Surrogate (<u>% Recovery</u>) (Limit 50-150)
SVE07-060419 906031-11	< 0.1	230	91
SVE08-060419 906031-12	< 0.1	16	85
SVE06-060419 906031-13	<0.1	33	89
SVE04-060419 906031-14	<0.1	400	103
$\underset{906031-15}{\text{SVE02-060419}}$	<0.1	14	79
Method Blank ^{09-1280 MB}	< 0.1	<10	76

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ENVIRONMENTAL CHEMISTS

Date of Report: 06/10/19 Date Received: 06/04/19 Project: Kelly Moore, F&BI 906031

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR BENZENE AND TPH AS GASOLINE USING MODIFIED EPA METHOD 8021B AND NWTPH-Gx

Analyta	Reporting Units	Sample Result	Duplicate Result	RPD
Analyte	Units	nesun	Result	(Limit 20)
Benzene	mg/m ³	< 0.1	< 0.1	nm
Gasoline	mg/m ³	20	19	5

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/m ³	5.0	91	70-130
Gasoline	mg/m ³	100	131	86-144

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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