MEMORANDUM

To: Mr. Robert Bliss
General Service Administration

From: Mr. Jeffrey Jensen, Kane Environmental, Inc.

Mr. John Kane, LG, LHG, Kane Environmental, Inc.

Date: December 8, 2017

Re: Federal Center South - GW Monitoring Summary Report
Facility/Site ID No. 18866
Voluntary Cleanup Program No. NW2930
Contract Number GS-P-10-15-LT-7032
PDN: EP-GS-P-10-15-LT-7032

State of Washington Hydrogeologist 1193 Licensed Geologist
JOHN R. KANE

Kane Environmental, Inc. (Kane Environmental) is pleased to present this memorandum update regarding the groundwater monitoring conducted at 4735 East Marginal Way South in Seattle, Washington (the Property) (Vicinity Map included as Figure 1) in December, 2015, March, 2016, June, 2016, and September, 2016. September, 2016 was the fourth quarter of groundwater performance monitoring.

BACKGROUND

Federal Center South is located at 4735 East Marginal Way South, in Seattle, Washington (the Property), adjacent to the Duwamish Waterway. It is comprised of King County tax parcel 357320-0975. The southeastern portion of the Property contained three (3) underground storage tanks (USTs) which were removed from the Property in 2014. The region of the former USTs is the area of concern (AOC).

Figure 1 is a Vicinity Map, and Figure 2 displays a Site Plan showing the entire Property. Figure 3 shows a Site Plan Detail showing the AOC and groundwater monitoring well installation locations.

A report titled *Underground Storage Tank Closure Report*, completed by The Riley Group, Inc. (RGI), dated July 23, 2014, was reviewed by Kane Environmental. This report detailed the decommissioning and removal of three (3) approximately 30,000-gallon USTs which had been installed by a former operator of the Property (Ford Motor Company) for storage of Bunker-C fuel and heating oil.

According to the RGI report, the USTs were decommissioned (pumped, rinsed, and inerted), prior to removal on March 18 and 19, 2014. The USTs were reported to be in good condition, and no releases from the USTs were noted. Collection and analysis of ten (10) soil samples from the UST excavation

yielded only one (1) detection of petroleum (diesel) in soil, at a concentration below the applicable State cleanup level. Since the bottoms of the USTs were located below the water table, and the excavation contained water after removal of the USTs, a sample of the excavation water was collected for petroleum analysis. *This water sample contained 230 micrograms per liter (ug/L) diesel, and 300 ug/L heavy oil which, when combined according to State protocol, exceeded the regulatory limit of 500 ug/L.*

The following scope of work was performed to assess the groundwater conditions mentioned above: Kane Environmental was contracted to oversee the installation of groundwater monitoring wells for the investigation of groundwater in an area that was excavated in 2014 for the removal of three USTs. In addition, Kane Environmental developed the wells, and is scheduled to sample them quarterly for analysis of total petroleum hydrocarbons (TPH) in the diesel and heavy oil ranges.

This is the fourth of the four quarterly sampling reports.

GROUNDWATER MONITORING

A total of four monitoring wells were installed on the Property. Monitoring wells KMW-1, KMW-2, and KMW-4 are located within the extents of the former UST excavation. Monitoring well KMW-3 is located west of the former UST excavation, in an assumed down-gradient position (Figure 3).

Well Installation

Wells KMW-1 through KMW-4 were installed on November 24, 2015. Kane Environmental retained ESN Northwest (ESN), an Ecology-licensed drilling contractor. ESN utilized a direct-push drilling rig to advance a temporary three-inch diameter casing. The one-inch diameter well screen, casing, and other well construction materials were installed through the casing as it was withdrawn. Soil samples were not collected during the well installation, and direct observations of subsurface materials was not available. The wells were completed in accordance with Washington State regulations with surface completions of traffic-rated flush mount monuments.

Wells KMW-1, KMW-2, and KMW-4 were installed within the footprint of the former UST excavation. Very dense materials, possible quarry spall installed into base of the excavation, were encountered between 13 and 15 feet below ground surface (bgs) in these borings. The drilling rig met refusal on these materials, and the wells were installed to the total depth of the borings. Well KMW-3 was installed in soils west of the former UST excavation. The boring was advanced to the total target depth of 20 feet bgs.

Well depths and screened intervals are summarized on Table 1.

TABLE 1
Well Completions

Well Name	*Date Installed*	*Total Depth (ft bgs)*	*Screened Interval, (ft bgs)*
KMW-1	11/24/2015	14	8-14
KMW-2	11/24/2015	14.5	8.5-14.5
KMW-3	11/24/2015	20	8-20
KMW-4	11/24/2015	15	8-15

The wells were developed by Kane on December 1, 2015. Wells were developed by pumping to remove turbidity. Approximately two to five gallons of water were removed from each well until pumped water appeared clear, with no observed turbidity.

Groundwater Sampling Methodology

The groundwater sampling procedure for each well, including Quality Assurance/Quality Control (QA/QC) procedures, is described below in detail. The groundwater monitoring wells were sampled on December 12, 2015, March 9, 2016, June 9, 2016, and September 19, 2016.

- Depth to groundwater in the well was measured with a decontaminated electric water interface probe. The probe was cleaned with alconox and rinsed with de-ionized water between sampling activities. The depth to groundwater in each well was measured directly after the previous well (within approximately five minutes total), in order to minimize any tidal influence.
- Groundwater collected from the well was sampled using a peristaltic pump with new polyethylene tubing. Low-flow sampling methodologies per United States Environmental Protection Agency (USEPA) guidelines were employed, with field parameters allowed to stabilize for the last three readings prior to sampling. Field parameters included pH, temperature, conductivity, and total dissolved solids (TDS) using a HANNA® 991300 hand-held meter.
- Groundwater samples were placed into appropriate laboratory-supplied, pre-cleaned and preserved containers for analysis.
- The groundwater samples were immediately placed into ice-filled coolers and subsequently transported to Fremont Analytical Environmental Laboratory (Fremont) in Seattle, Washington, under standard chain-of-custody protocols.

Analytical Methodology

Groundwater samples were submitted to the laboratory and analyzed for Total Petroleum Hydrocarbons (TPH) as diesel and heavy oil by Washington Department of Ecology (Ecology) approved method NWTPH-Dx/Dx-Extended. Silica gel cleanup was completed on the March, 2016 and June, 2016 samples, to remove non-petroleum hydrocarbons (common in a riparian depositional environment, such as near the Property), in order to provide analytic results representative of any petroleum hydrocarbons.

All analyses were performed in accordance with Fremont's in-house Quality Assurance/Quality Control Plans. Sample analyses were performed in compliance with EPA analytical methods and Ecology guidelines. Samples were analyzed within specified holding times. All detection limits were within method requirements and no factors appeared to adversely affect data quality. Internal test methods run by the laboratory to ensure data accuracy and reproducibility include method blanks, method blank duplicates, surrogate blanks, and surrogate blank duplicates.

Sampling was performed in general accordance with USEPA low-flow sampling methodologies. Depth to groundwater and groundwater elevation within each well, as well as stabilized parameters, are summarized below in Table 2. Figures 4 through 7 depict the groundwater elevation contours during the quarterly monitoring events.

Monitoring Well Survey

In order to identify the horizontal coordinates and vertical elevation of the groundwater monitoring wells, Kane Environmental retained DOWL of Redmond, Washington to conduct a survey of the existing wells on the Property. The vertical datum utilized was NAVD88. Monitoring well top of casing (TOC) elevations as well as the corresponding groundwater elevations are listed in Table 2.

Groundwater flow direction on the Property was subsequently calculated for the four quarters of groundwater monitoring conducted. Groundwater flow direction varied seasonally on the Property, with flow direction ranging from west-northwest in December, 2015, to south-southeast in March, 2016, and to northeast in June and September of 2016. The varying groundwater flow direction suggests that the groundwater in the vicinity of the Property is subject to tidal influence.

TABLE 2
Groundwater Elevation and Field Parameters

Well Name	*Date*	*Top of Casing Elevation (ft)#*	*Depth to Groundwater (ft bgs)*	*Groundwater Elevation (ft)*	*pH*	*Temperature (° C)*	*Total Dissolved Solids (ppm)*	*Conductivity (µS)*
KMW-1	12/4/2015	17.109	9.19	7.919	6.92	14.7	540	1082
	3/9/2016		8.39	8.719	7.10	11.2	384	767
	6/9/2016		10.24	6.869	6.96	14.2	393	785
	9/19/2016		10.91	6.199	7.13	18.0	435	870
KMW-2	12/4/2015	17.108	9.11	7.998	6.87	15.2	583	1166
	3/9/2016		9.71	7.398	7.11	12.5	504	1010
	6/9/2016		10.16	6.948	6.86	14.4	370	741
	9/19/2016		10.75	6.358	7.13	16.9	407	817
KMW-3	12/4/2015	17.524	9.76	7.764	6.67	15.0	>2000*	>3999*
	3/9/2016		8.55	8.974	7.17	11.3	436	872
	6/9/2016		10.60	6.924	6.87	13.7	339	1082
	9/19/2016		11.24	6.284	6.89	16.4	>2000*	>3999*
KMW-4	12/4/2015	17.237	9.27	7.967	6.93	14.7	559	1117
	3/9/2016		8.48	8.757	7.15	11.1	416	832
	6/9/2016		10.32	6.917	6.92	14.7	403	805
	9/19/2016		10.99	6.247	7.14	17.7	442	884

Notes:
***** - Parameter was out of range for the instrument, with a value greater than that shown above.
# - Datum: NAVD88.

FINDINGS

Diesel range petroleum hydrocarbons (DRO) were not detected in any of the samples in any of the sampling events. Heavy oil range petroleum hydrocarbons (RRO) were not detected at laboratory reporting limits or at concentrations below the MTCA Method A Groundwater Cleanup Level in December, 2015, March, 2016, June, 21016, and September, 2016. Please note that Total Petroleum Hydrocarbons is the cumulative concentration of DRO and RRO, except in cases in which separate products are known to be present; Bunker C is known to have been present, but elutes in both DRO and RRO petroleum ranges and may not be identified as a specific product.

Groundwater sample analytical results are summarized below in Table 3. The full laboratory analytical reports are included as Attachment A.

TABLE 3
Summary of Diesel and Heavy Oil TPH in Groundwater

Sample ID	Sample Date	Total Petroleum Hydrocarbons-Diesel (DRO)	Total Petroleum Hydrocarbons-Heavy Oil (RRO)	Total Petroleum Hydrocarbons *
		µg/L	µg/L	µg/L
KMW-1	12/4/2015	nd	311	311
	3/9/2016	nd	nd	nd
	6/9/2016	nd	nd	nd
	9/19/2016	nd	192	192
KMW-2	12/4/2015	nd	254	254
	3/9/2016	nd	nd	nd
	6/19/2016	nd	nd	nd
	9/19/2016	nd	239	239
KMW-3	12/4/2015	nd	175	175
	3/9/2016	nd	187	187
	6/9/2016	nd	nd	nd
	9/19/2016	nd	110	110
KMW-4	12/4/2015	nd	411	411
	3/9/2016	nd	166	166
	6/9/2016	nd	nd	nd
	9/19/2016	nd	156	156
Method Reporting Limit [a]		*50.1*	*100*	-
MTCA Method A Cleanup Level for Groundwater		*500*	*500*	*500*

Notes:
µg/L = micrograms per liter (equivalent to parts per billion [ppb]).
nd = not detected at Method Reporting Limit.
a = Reporting Limits vary (see Attachment A). Highest limit shown.
* = Total Petroleum Hydrocarbons is the cumulative concentration of DRO and RRO, except in cases in which separate products are known to be present; Bunker C is known to have been present, but elutes in both DRO and RRO petroleum ranges and may not be identified as a specific product.
- = Total Petroleum Hydrocarbons is the sum of any DRO and RRO (see corresponding note in table, above) - see reporting limits for each component.

CONCLUSIONS

Based on the analytical results of the groundwater monitoring, no constituents of concern (CoC) concentrations exceeded the MTCA Method A Groundwater Cleanup Level in December, 2015, March, 2016, June, 2016, or September, 2016. Based on four consecutive quarters with heavy oil range petroleum hydrocarbons (RRO) not detected at laboratory reporting limits or at concentrations below the MTCA Method A Groundwater Cleanup Level, an application for No Further Action (NFA) may be made with Ecology.

FIGURES

TABLES

ATTACHMENTS

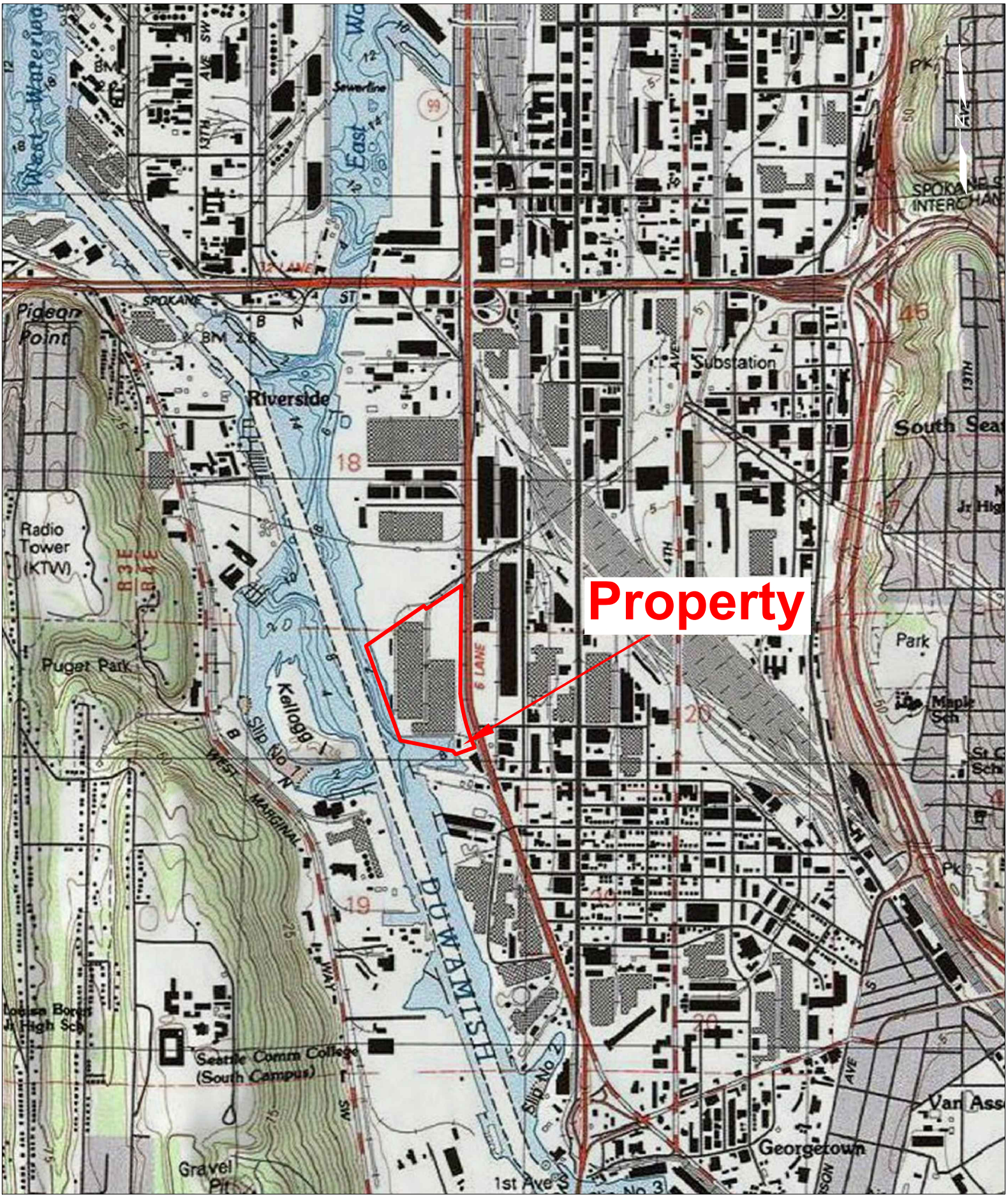
LIMITATIONS

Kane Environmental has performed this work in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same locality and at the same time as the work was performed, and with the terms and conditions as set forth in our proposal.

In preparing this report, Kane Environmental relied on oral statements made by certain individuals. Kane Environmental has not conducted an independent examination of the facts contained in referenced materials and/or statements. Kane Environmental shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the report was prepared. Facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time the work was performed. Conclusions were made within the operative constraints of the scope of work, budget, and schedule for this project.

Our assessment of the Property may change as new data become available, either from persons familiar with the site or during additional site studies, exploration, or sampling. This report is intended for the exclusive use of the General Service Administration, and its designated assignees for specific application to the referenced subject property. It is not meant to represent a legal opinion. No other warranty, express or implied, is made.

FIGURES

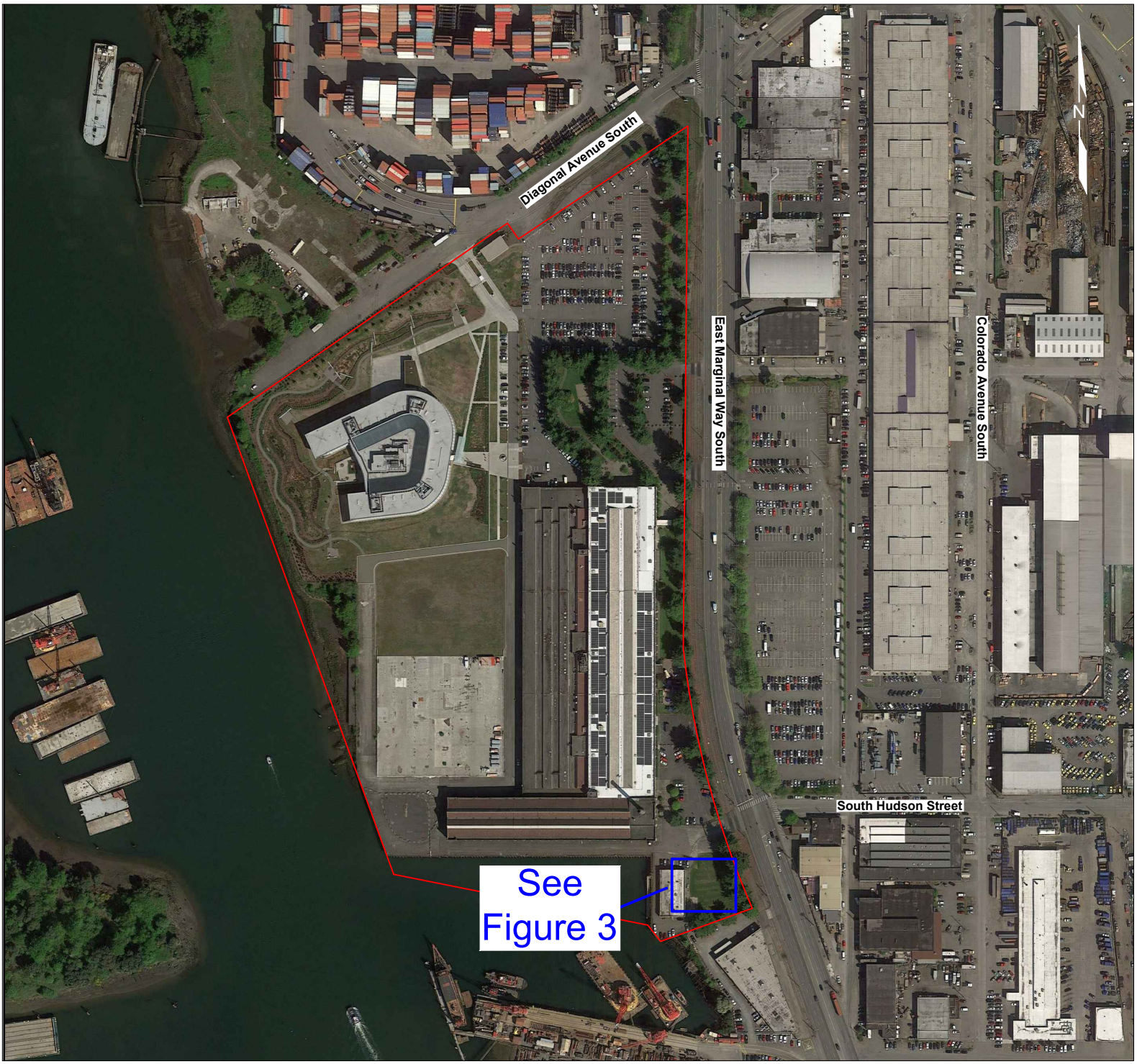


KANE ENVIRONMENTAL INC

Project No. 78901

Federal Center South
4735 East Marginal Way South
Seattle, Washington

Figure 1
Vicinity Map



LEGEND

Approximate Location of Property Boundary

0 350 700

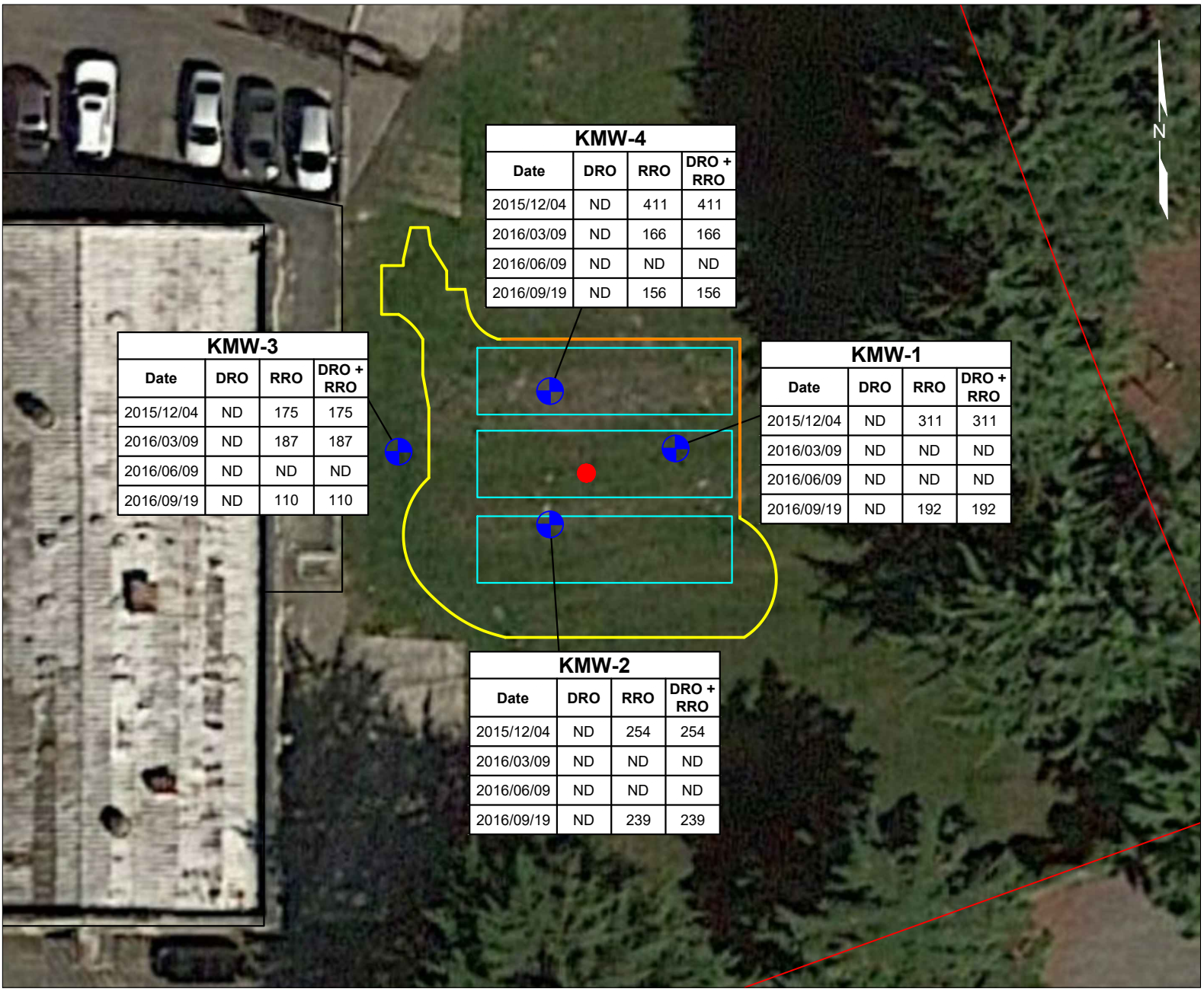
Approximate Scale in Feet

KANE ENVIRONMENTAL INC

Project No. 78901

Federal Center South
4735 East Marginal Way South
Seattle, Washington

Figure 2
Site Plan



LEGEND

0 25 50
Approximate Scale in Feet

- Property Boundary
- Extent of 2014 Riley Group UST Excavation
- Retaining Wall
- Groundwater Monitoring Well
- Heavy Oil Exceedance, Groundwater, 2014 Riley Group
- Former UST

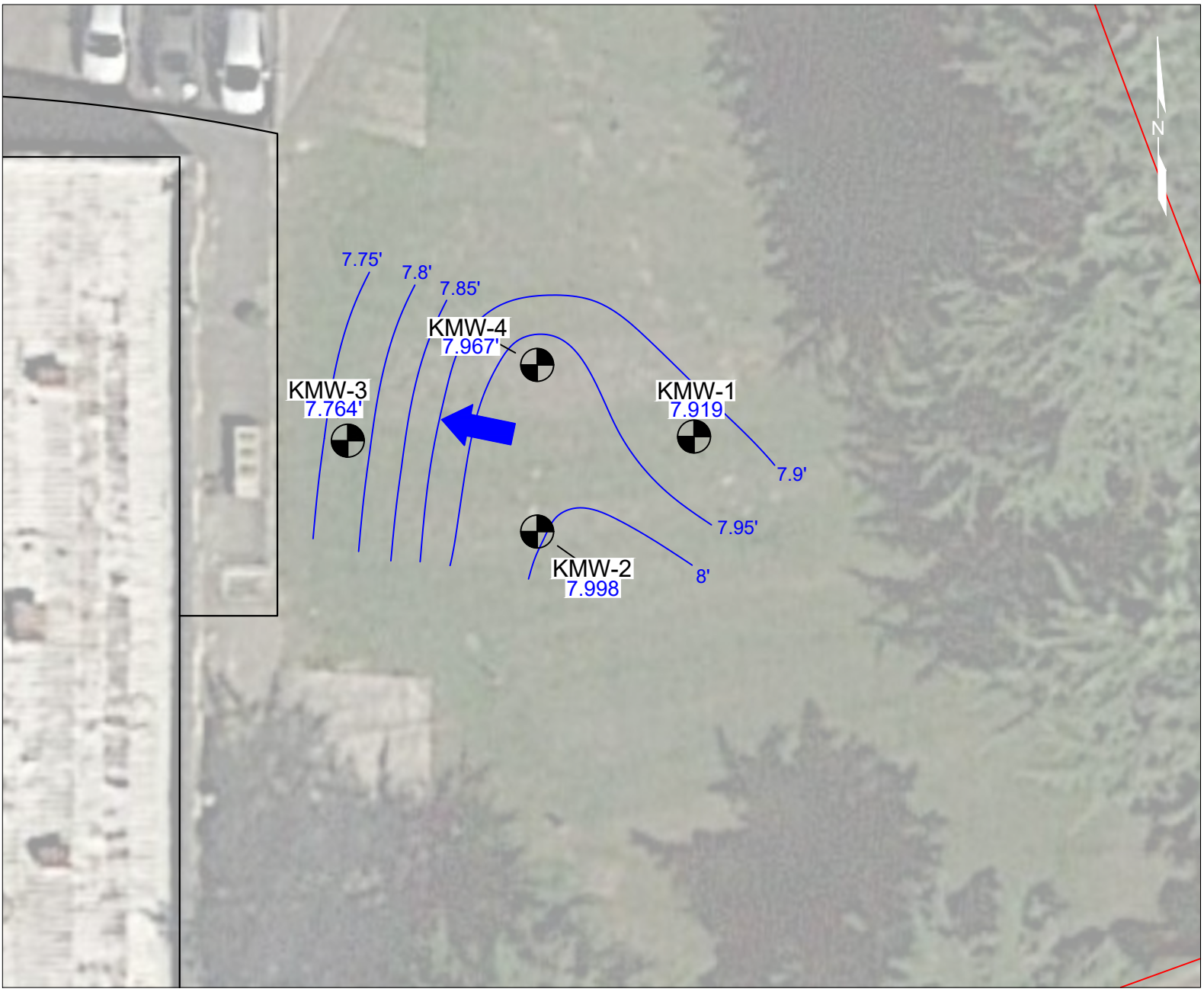
All locations are approximate.

KANE ENVIRONMENTAL INC

Project No. 78901

Federal Center South
4735 East Marginal Way South
Seattle, Washington

Figure 3
Quarterly Monitoring
Analytical Results



LEGEND

0 20 40
Approximate Scale in Feet

Property Boundary

Estimated Groundwater Elevation Contour

KMW-1
7.919'

Approximate Location of Groundwater Monitoring Well and Groundwater Elevation (12/4/2015)

All locations are approximate.

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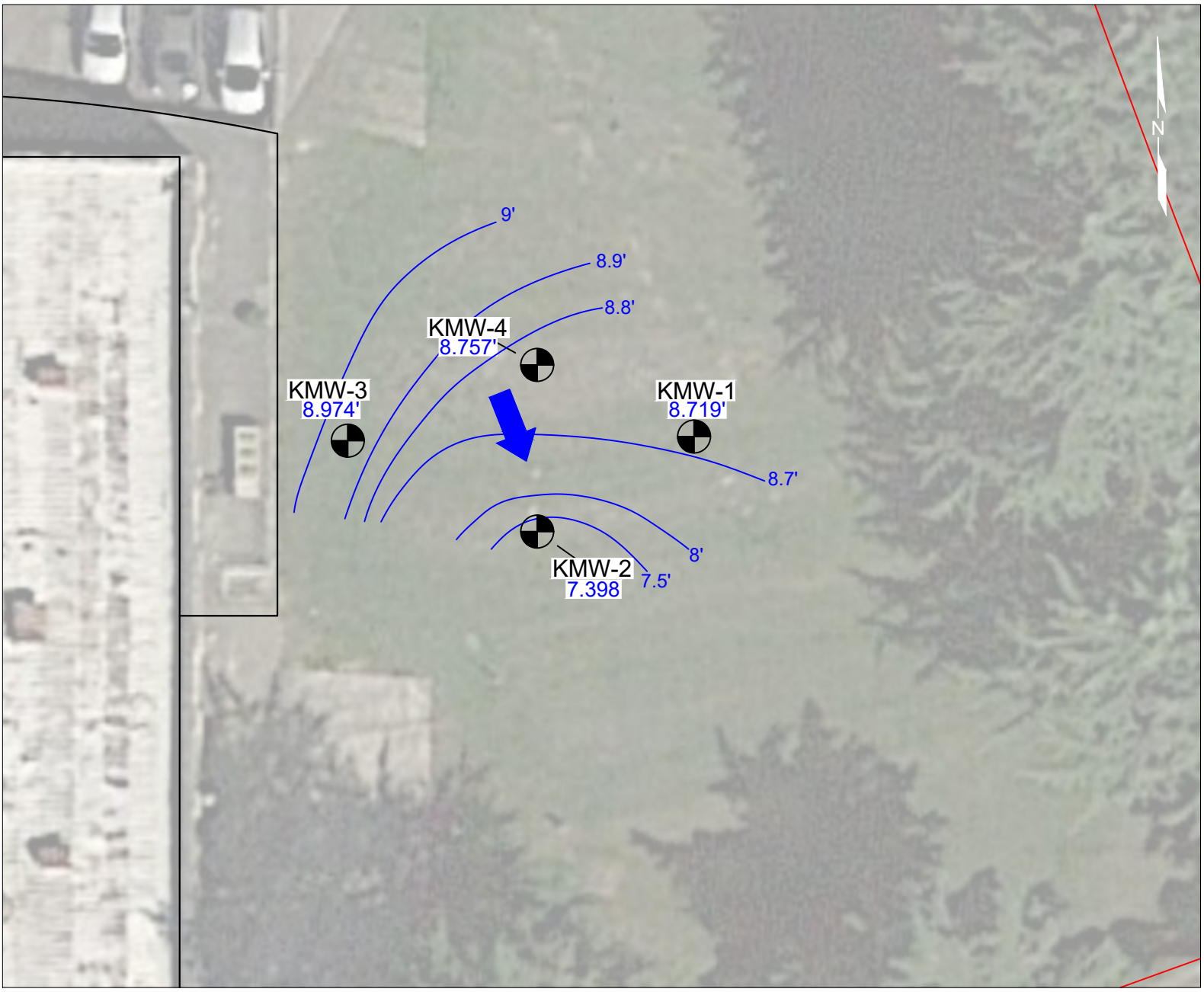
Project No. 78901

Federal Center South
4735 East Marginal Way South
Seattle, Washington

Figure 4
Groundwater Elevation
December 2015



LEGEND

0 20 40
Approximate Scale in Feet

Property Boundary

Estimated Groundwater Elevation Contour

KMW-1
8.719'

Approximate Location of Groundwater Monitoring Well and Groundwater Elevation (3/9/2016)

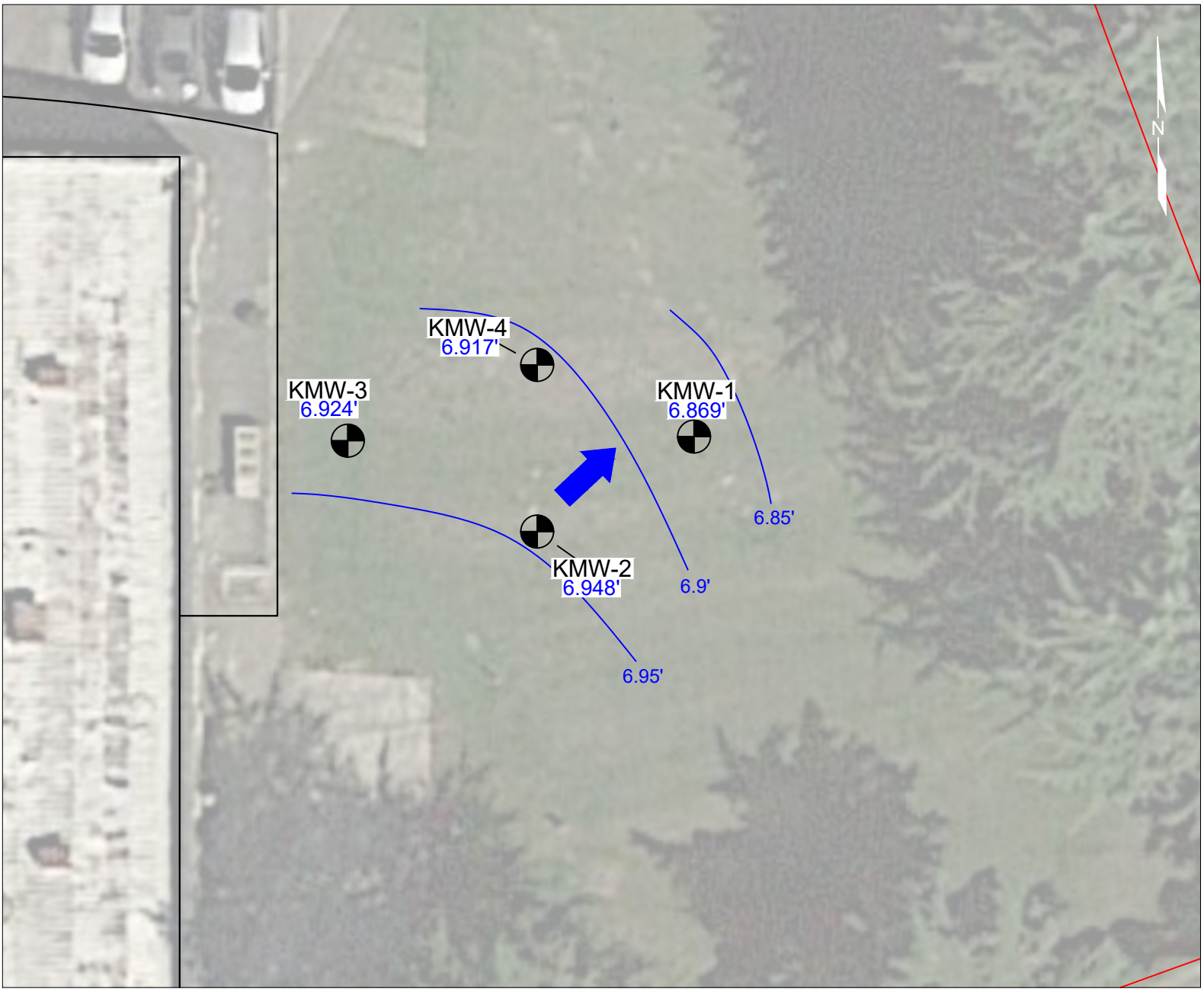
All locations are approximate.

KANE ENVIRONMENTAL INC

Project No. 78901

Federal Center South
4735 East Marginal Way South
Seattle, Washington

Figure 5
Groundwater Elevation
March 2016



LEGEND

0 20 40
Approximate Scale in Feet

Property Boundary

Estimated Groundwater Elevation Contour

KMW-1
6.869'

Approximate Location of Groundwater Monitoring Well and Groundwater Elevation (6/9/2016)

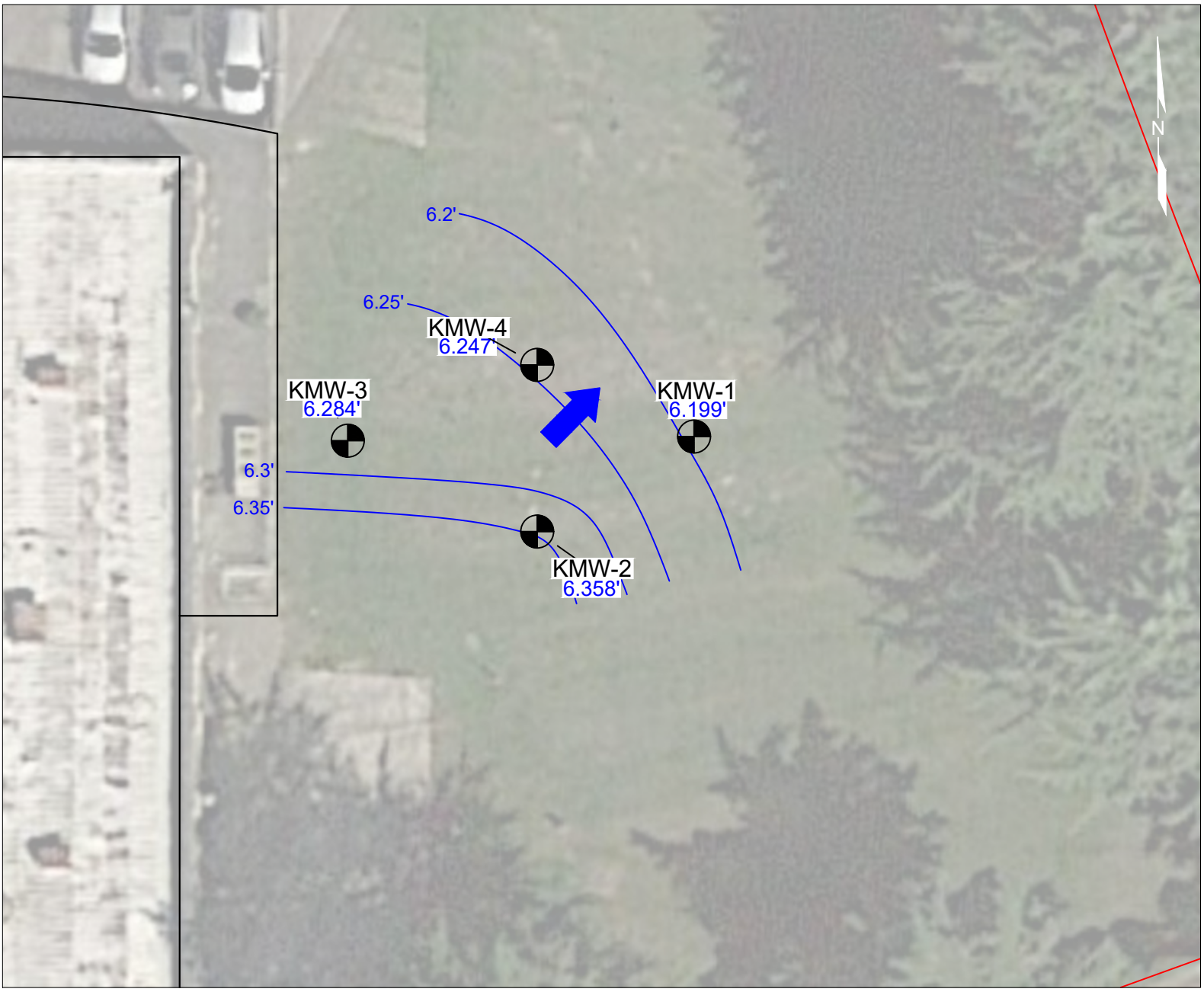
All locations are approximate.

KANE ENVIRONMENTAL INC

Project No. 78901

Federal Center South
4735 East Marginal Way South
Seattle, Washington

Figure 6
Groundwater Elevation
June 2016



LEGEND

0 20 40
Approximate Scale in Feet

Property Boundary

Estimated Groundwater Elevation Contour

KMW-1
6.199'

Approximate Location of Groundwater Monitoring Well and Groundwater Elevation (9/19/2016)

All locations are approximate.

KANE ENVIRONMENTAL INC

Project No. 78901

Federal Center South
4735 East Marginal Way South
Seattle, Washington

Figure 7
Groundwater Elevation
September 2016

ATTACHMENT A
LABORATORY ANALYTICAL REPORTS

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Kane Environmental, Inc.
Justin Vetter
3815 Woodland Park Ave N, Ste. 102
Seattle, WA 98103

RE: FCS
Lab ID: 1512050

December 09, 2015

Attention Justin Vetter:

Fremont Analytical, Inc. received 5 sample(s) on 12/4/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager

Date: *12/09/2015*

CLIENT: Kane Environmental, Inc.
Project: FCS
Lab Order: 1512050

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1512050-001	KMW-1:W	12/04/2015 1:05 PM	12/04/2015 4:17 PM
1512050-002	KMW-2:W	12/04/2015 1:50 PM	12/04/2015 4:17 PM
1512050-003	KMW-3:W	12/04/2015 2:28 PM	12/04/2015 4:17 PM
1512050-004	KMW-4:W	12/04/2015 3:15 PM	12/04/2015 4:17 PM
1512050-005	Trip Blank	12/04/2015 10:41 AM	12/04/2015 4:17 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1512050**
Date: **12/9/2015**

CLIENT: Kane Environmental, Inc.
Project: FCS

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

WO#: **1512050**
Date Reported: **12/9/2015**

CLIENT: Kane Environmental, Inc.
Project: FCS

Lab ID: 1512050-001 **Collection Date:** 12/4/2015 1:05:00 PM
Client Sample ID: **KMW-1:W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12538		Analyst: EC
Diesel (Fuel Oil)	ND	49.6		µg/L	1	12/8/2015 12:28:00 PM
Heavy Oil	311	99.3		µg/L	1	12/8/2015 12:28:00 PM
Surr: 2-Fluorobiphenyl	79.0	50-150		%Rec	1	12/8/2015 12:28:00 PM
Surr: o-Terphenyl	76.0	50-150		%Rec	1	12/8/2015 12:28:00 PM

Lab ID: 1512050-002 **Collection Date:** 12/4/2015 1:50:00 PM
Client Sample ID: **KMW-2:W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12538		Analyst: EC
Diesel (Fuel Oil)	ND	50.0		µg/L	1	12/8/2015 1:31:00 PM
Heavy Oil	254	100		µg/L	1	12/8/2015 1:31:00 PM
Surr: 2-Fluorobiphenyl	84.5	50-150		%Rec	1	12/8/2015 1:31:00 PM
Surr: o-Terphenyl	83.9	50-150		%Rec	1	12/8/2015 1:31:00 PM

Lab ID: 1512050-003 **Collection Date:** 12/4/2015 2:28:00 PM
Client Sample ID: **KMW-3:W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12538		Analyst: EC
Diesel (Fuel Oil)	ND	49.9		µg/L	1	12/8/2015 2:03:00 PM
Heavy Oil	175	99.8		µg/L	1	12/8/2015 2:03:00 PM
Surr: 2-Fluorobiphenyl	80.5	50-150		%Rec	1	12/8/2015 2:03:00 PM
Surr: o-Terphenyl	81.0	50-150		%Rec	1	12/8/2015 2:03:00 PM

Analytical Report

WO#: **1512050**
Date Reported: **12/9/2015**

CLIENT: Kane Environmental, Inc.
Project: FCS

Lab ID: 1512050-004 **Collection Date:** 12/4/2015 3:15:00 PM
Client Sample ID: **KMW-4:W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 12538		Analyst: EC
Diesel (Fuel Oil)	ND	49.7		µg/L	1	12/8/2015 3:06:00 PM
Heavy Oil	411	99.3		µg/L	1	12/8/2015 3:06:00 PM
Surr: 2-Fluorobiphenyl	86.6	50-150		%Rec	1	12/8/2015 3:06:00 PM
Surr: o-Terphenyl	92.6	50-150		%Rec	1	12/8/2015 3:06:00 PM

Work Order: 1512050
CLIENT: Kane Environmental, Inc.
Project: FCS

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **LCS-12538** SampType: **LCS** Units: **µg/L** Prep Date: **12/7/2015** RunNo: **26454**
Client ID: **LCSW** Batch ID: **12538** Analysis Date: **12/8/2015** SeqNo: **499281**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	841	49.9	998.4	0	84.2	65	135				
Surr: 2-Fluorobiphenyl	68.2		79.87		85.4	50	150				
Surr: o-Terphenyl	63.5		79.87		79.5	50	150				

Sample ID **MB-12538** SampType: **MBLK** Units: **µg/L** Prep Date: **12/7/2015** RunNo: **26454**
Client ID: **MBLKW** Batch ID: **12538** Analysis Date: **12/8/2015** SeqNo: **499282**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.8									
Heavy Oil	ND	99.6									
Surr: 2-Fluorobiphenyl	56.8		79.67		71.3	50	150				
Surr: o-Terphenyl	58.7		79.67		73.7	50	150				

Sample ID **1512050-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **12/7/2015** RunNo: **26454**
Client ID: **KMW-1:W** Batch ID: **12538** Analysis Date: **12/8/2015** SeqNo: **499278**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.8						0		30	
Heavy Oil	476	99.5						310.6	42.1	30	R
Surr: 2-Fluorobiphenyl	71.4		79.62		89.7	50	150		0		
Surr: o-Terphenyl	71.8		79.62		90.2	50	150		0		

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1512050-003BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **12/7/2015** RunNo: **26454**
Client ID: **KMW-3:W** Batch ID: **12538** Analysis Date: **12/8/2015** SeqNo: **499307**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.9						0		30	
Heavy Oil	146	99.7						174.5	17.9	30	
Surr: 2-Fluorobiphenyl	59.2		79.76		74.2	50	150		0		

Date: *12/9/2015*

Work Order: 1512050
CLIENT: Kane Environmental, Inc.
Project: FCS

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1512050-003BDUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **12/7/2015**		RunNo: **26454**	
Client ID: **KMW-3:W**	Batch ID: **12538**					Analysis Date: **12/8/2015**		SeqNo: **499307**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	60.8		79.76		76.3	50	150		0		

Sample Log-In Check List

Client Name:	**KANE**	Work Order Number:	**1512050**
Logged by:	**Clare Griggs**	Date Received:	**12/4/2015 4:17:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	2.0
Sample	6.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1512050

Date: 2015/12/04 Page: 1 of: 1

Client: Kane Environmental
Address: 3815 Woodland Park Ave N. Suite 102
City, State, Zip: Seattle WA 98103
Telephone: Fax:

Project Name: FCS
Project No: 78901 Collected by: JV
Location: E. Marginal Way S.
Report To (PM): Justin Vetter
PM Email: jvetter@kane-environmental.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (EC)***	EDB (8011)	Comments
1	KMW-1:W	2015/12/04	1305	W		X				X									Hold Gx/BTEX
2	KMW-2:W	"	1350	"		X				X									Hold Gx/BTEX
3	KMW-3:W	"	1428	"		X				X									Hold Gx/BTEX
4	KMW-4:W	"	1515	"		X				X									Hold Gx/BTEX
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	2015-12-04@1617	x	2015-12-04 @ 1617
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Kane Environmental, Inc.
Justin Vetter
3815 Woodland Park Ave N, Ste. 102
Seattle, WA 98103

RE: Federal Center South
Lab ID: 1603114

March 16, 2016

Attention Justin Vetter:

Fremont Analytical, Inc. received 4 sample(s) on 3/9/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager

Date: *03/16/2016*

CLIENT: Kane Environmental, Inc.
Project: Federal Center South
Lab Order: 1603114

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1603114-001	KMW-1:W	03/09/2016 2:44 PM	03/09/2016 4:21 PM
1603114-002	KMW-2:W	03/09/2016 1:30 PM	03/09/2016 4:21 PM
1603114-003	KMW-3:W	03/09/2016 1:55 PM	03/09/2016 4:21 PM
1603114-004	KMW-4:W	03/09/2016 2:20 PM	03/09/2016 4:21 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1603114**
Date: **3/16/2016**

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.
Prep Comments for METHOD (PREP-DX-W), SAMPLE (1603114-001A) required Silica Gel Cleanup Procedure (Using Method No 3630C).
Prep Comments for METHOD (PREP-DX-W), SAMPLE (1603114-002A) required Silica Gel Cleanup Procedure (Using Method No 3630C).
Prep Comments for METHOD (PREP-DX-W), SAMPLE (1603114-003A) required Silica Gel Cleanup Procedure (Using Method No 3630C).
Prep Comments for METHOD (PREP-DX-W), SAMPLE (1603114-004A) required Silica Gel Cleanup Procedure (Using Method No 3630C).

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

WO#: **1603114**
Date Reported: **3/16/2016**

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

Lab ID: 1603114-001 **Collection Date:** 3/9/2016 2:44:00 PM
Client Sample ID: **KMW-1:W** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 13195		Analyst: EC
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/11/2016 2:03:00 PM
Heavy Oil	ND	99.9		µg/L	1	3/11/2016 2:03:00 PM
Surr: 2-Fluorobiphenyl	84.1	50-150		%Rec	1	3/11/2016 2:03:00 PM
Surr: o-Terphenyl	92.0	50-150		%Rec	1	3/11/2016 2:03:00 PM

Lab ID: 1603114-002 **Collection Date:** 3/9/2016 1:30:00 PM
Client Sample ID: **KMW-2:W** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 13195		Analyst: EC
Diesel (Fuel Oil)	ND	49.9		µg/L	1	3/11/2016 2:34:00 PM
Heavy Oil	ND	99.9		µg/L	1	3/11/2016 2:34:00 PM
Surr: 2-Fluorobiphenyl	87.3	50-150		%Rec	1	3/11/2016 2:34:00 PM
Surr: o-Terphenyl	94.6	50-150		%Rec	1	3/11/2016 2:34:00 PM

Lab ID: 1603114-003 **Collection Date:** 3/9/2016 1:55:00 PM
Client Sample ID: **KMW-3:W** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 13195		Analyst: EC
Diesel (Fuel Oil)	ND	49.9		µg/L	1	3/11/2016 3:06:00 PM
Heavy Oil	187	99.8		µg/L	1	3/11/2016 3:06:00 PM
Surr: 2-Fluorobiphenyl	98.1	50-150		%Rec	1	3/11/2016 3:06:00 PM
Surr: o-Terphenyl	106	50-150		%Rec	1	3/11/2016 3:06:00 PM

Analytical Report

WO#: **1603114**
Date Reported: **3/16/2016**

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

Lab ID: 1603114-004 **Collection Date:** 3/9/2016 2:20:00 PM
Client Sample ID: **KMW-4:W** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 13195		Analyst: EC
Diesel (Fuel Oil)	ND	49.7		µg/L	1	3/11/2016 3:37:00 PM
Heavy Oil	166	99.4		µg/L	1	3/11/2016 3:37:00 PM
Surr: 2-Fluorobiphenyl	88.7	50-150		%Rec	1	3/11/2016 3:37:00 PM
Surr: o-Terphenyl	96.1	50-150		%Rec	1	3/11/2016 3:37:00 PM

Work Order: 1603114
CLIENT: Kane Environmental, Inc.
Project: Federal Center South

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-13195**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **3/10/2016**		RunNo: **28168**			
Client ID: **MBLKW**	Batch ID: **13195**					Analysis Date: **3/11/2016**		SeqNo: **529667**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.9									
Heavy Oil	ND	99.9									
Surr: 2-Fluorobiphenyl	56.8		79.91		71.1	50	150				
Surr: o-Terphenyl	63.7		79.91		79.7	50	150				

Sample ID **LCS-13195**	SampType: **LCS**			Units: **µg/L**		Prep Date: **3/10/2016**		RunNo: **28168**			
Client ID: **LCSW**	Batch ID: **13195**					Analysis Date: **3/11/2016**		SeqNo: **529666**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	733	49.9	997.7	0	73.4	65	135				
Surr: 2-Fluorobiphenyl	63.0		79.81		78.9	50	150				
Surr: o-Terphenyl	67.5		79.81		84.5	50	150				

Sample ID **1603092-001BMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **3/10/2016**		RunNo: **28168**			
Client ID: **BATCH**	Batch ID: **13195**					Analysis Date: **3/11/2016**		SeqNo: **529660**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	487	49.7	994.1	0	49.0	65	135				S
Surr: 2-Fluorobiphenyl	60.9		79.53		76.6	50	150				
Surr: o-Terphenyl	35.9		79.53		45.1	50	150				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Low surrogate recovery caused by emulsions during extraction procedure. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1603092-001BMSD**	SampType: **MSD**			Units: **µg/L**		Prep Date: **3/10/2016**		RunNo: **28168**			
Client ID: **BATCH**	Batch ID: **13195**					Analysis Date: **3/11/2016**		SeqNo: **529663**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	478	50.0	999.6	0	47.8	65	135	487.0	1.91	30	S
Surr: 2-Fluorobiphenyl	61.5		79.97		76.9	50	150		0	0	
Surr: o-Terphenyl	33.0		79.97		41.2	50	150		0	0	S

Date: *3/16/2016*

Work Order: 1603114
CLIENT: Kane Environmental, Inc.
Project: Federal Center South

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1603092-001BMSD** SampType: **MSD** Units: **µg/L** Prep Date: **3/10/2016** RunNo: **28168**
Client ID: **BATCH** Batch ID: **13195** Analysis Date: **3/11/2016** SeqNo: **529663**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Low surrogate recovery caused by emulsions during extraction procedure. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1603099-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/10/2016** RunNo: **28168**
Client ID: **BATCH** Batch ID: **13195** Analysis Date: **3/11/2016** SeqNo: **529662**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.9						0		30	
Heavy Oil	ND	99.7						0		30	
Surr: 2-Fluorobiphenyl	73.0		79.79		91.5	50	150		0		
Surr: o-Terphenyl	79.1		79.79		99.2	50	150		0		

Sample ID **1603127-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/10/2016** RunNo: **28168**
Client ID: **BATCH** Batch ID: **13195** Analysis Date: **3/11/2016** SeqNo: **530021**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	56.5						0		30	
Heavy Oil	ND	113						0		30	
Surr: 2-Fluorobiphenyl	75.4		90.32		83.5	50	150		0		
Surr: o-Terphenyl	85.2		90.32		94.3	50	150		0		

Sample Log-In Check List

Client Name:	**KANE**	Work Order Number:	**1603114**
Logged by:	**Clare Griggs**	Date Received:	**3/9/2016 4:21:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	0.4
Sample	1.0

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1603114

Date: 2016/03/09 Page: 1 of: 1

Client: Kane Environmental
Address:
City, State, Zip:
Telephone: Fax:

Project Name: Federal Center South
Project No: 73901 Collected by: JV
Location: Federal Center South, Seattle
Report To (PM): Justin Vetter
PM Email: jvetter@kane-environmental.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270) - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	KMW-1:W	2016/03/09	1444	GW					X										
2	KMW-2:W		1330						X										
3	KMW-3:W		1355						X										
4	KMW-4:W		1420						X										
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 60 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: silica gel cleanup

Relinquished	Date/Time	Received	Date/Time
x	2016-0309@1621	x	3/9/16 1621
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day (STD)

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Kane Environmental, Inc.
Justin Vetter
3815 Woodland Park Ave N, Ste. 102
Seattle, WA 98103

RE: Federal Center South
Lab ID: 1606139

June 16, 2016

Attention Justin Vetter:

Fremont Analytical, Inc. received 4 sample(s) on 6/9/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager

Date: *06/16/2016*

CLIENT: Kane Environmental, Inc.
Project: Federal Center South
Lab Order: 1606139

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1606139-001	KMW-1 060916	06/09/2016 9:18 AM	06/09/2016 2:48 PM
1606139-002	KMW-2 060916	06/09/2016 9:58 AM	06/09/2016 2:48 PM
1606139-003	KMW-3 060916	06/09/2016 10:34 AM	06/09/2016 2:48 PM
1606139-004	KMW-4 060916	06/09/2016 11:18 AM	06/09/2016 2:48 PM

Case Narrative

WO#: **1606139**
Date: **6/16/2016**

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.
Prep Comments for METHOD (PREP-DX-W), SAMPLE (1606139-001A) required Silica Gel Cleanup Procedure (Using Method No 3630C).
Prep Comments for METHOD (PREP-DX-W), SAMPLE (1606139-002A) required Silica Gel Cleanup Procedure (Using Method No 3630C).
Prep Comments for METHOD (PREP-DX-W), SAMPLE (1606139-003A) required Silica Gel Cleanup Procedure (Using Method No 3630C).
Prep Comments for METHOD (PREP-DX-W), SAMPLE (1606139-004A) required Silica Gel Cleanup Procedure (Using Method No 3630C).

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

Lab ID: 1606139-001 **Collection Date:** 6/9/2016 9:18:00 AM
Client Sample ID: **KMW-1 060916** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 13990		Analyst: WC
Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/15/2016 4:15:00 PM
Heavy Oil	ND	100		µg/L	1	6/15/2016 4:15:00 PM
Surr: 2-Fluorobiphenyl	74.0	50-150		%Rec	1	6/15/2016 4:15:00 PM
Surr: o-Terphenyl	76.4	50-150		%Rec	1	6/15/2016 4:15:00 PM

Lab ID: 1606139-002 **Collection Date:** 6/9/2016 9:58:00 AM
Client Sample ID: **KMW-2 060916** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 13990		Analyst: WC
Diesel (Fuel Oil)	ND	50.1		µg/L	1	6/15/2016 4:48:00 PM
Heavy Oil	ND	100		µg/L	1	6/15/2016 4:48:00 PM
Surr: 2-Fluorobiphenyl	70.2	50-150		%Rec	1	6/15/2016 4:48:00 PM
Surr: o-Terphenyl	68.6	50-150		%Rec	1	6/15/2016 4:48:00 PM

Lab ID: 1606139-003 **Collection Date:** 6/9/2016 10:34:00 AM
Client Sample ID: **KMW-3 060916** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 13990		Analyst: WC
Diesel (Fuel Oil)	ND	49.9		µg/L	1	6/15/2016 5:21:00 PM
Heavy Oil	ND	99.8		µg/L	1	6/15/2016 5:21:00 PM
Surr: 2-Fluorobiphenyl	68.2	50-150		%Rec	1	6/15/2016 5:21:00 PM
Surr: o-Terphenyl	69.2	50-150		%Rec	1	6/15/2016 5:21:00 PM

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

Lab ID: 1606139-004 **Collection Date:** 6/9/2016 11:18:00 AM
Client Sample ID: **KMW-4 060916** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 13990		Analyst: WC
Diesel (Fuel Oil)	ND	49.8		µg/L	1	6/15/2016 6:59:00 PM
Heavy Oil	ND	99.6		µg/L	1	6/15/2016 6:59:00 PM
Surr: 2-Fluorobiphenyl	68.2	50-150		%Rec	1	6/15/2016 6:59:00 PM
Surr: o-Terphenyl	66.4	50-150		%Rec	1	6/15/2016 6:59:00 PM

Work Order: 1606139
CLIENT: Kane Environmental, Inc.
Project: Federal Center South

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-13990**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **6/14/2016**		RunNo: **29979**		
Client ID: **MBLKW**	Batch ID: **13990**					Analysis Date: **6/15/2016**		SeqNo: **566456**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	55.7		80.06		69.6	50	150				
Surr: o-Terphenyl	54.2		80.06		67.7	50	150				

Sample ID **LCS-13990**	SampType: **LCS**			Units: **µg/L**		Prep Date: **6/14/2016**		RunNo: **29979**		
Client ID: **LCSW**	Batch ID: **13990**					Analysis Date: **6/15/2016**		SeqNo: **566454**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	699	50.0	999.7	0	69.9	65	135				
Surr: 2-Fluorobiphenyl	58.1		79.97		72.7	50	150				
Surr: o-Terphenyl	53.1		79.97		66.4	50	150				

Sample ID **LCSD-13990**	SampType: **LCSD**			Units: **µg/L**		Prep Date: **6/14/2016**		RunNo: **29979**		
Client ID: **LCSW02**	Batch ID: **13990**					Analysis Date: **6/15/2016**		SeqNo: **566455**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	783	50.0	1,000	0	78.3	65	135	698.9	11.3	30	
Surr: 2-Fluorobiphenyl	62.8		80.00		78.5	50	150		0		
Surr: o-Terphenyl	58.7		80.00		73.4	50	150		0		

Sample ID **1606139-004ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **6/14/2016**		RunNo: **29979**		
Client ID: **KMW-4 060916**	Batch ID: **13990**					Analysis Date: **6/15/2016**		SeqNo: **566570**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.1						0		30	
Heavy Oil	ND	100						0		30	
Surr: 2-Fluorobiphenyl	59.7		80.10		74.5	50	150		0		
Surr: o-Terphenyl	60.1		80.10		75.1	50	150		0		

Work Order: 1606139
CLIENT: Kane Environmental, Inc.
Project: Federal Center South

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	**1606139-004ADUP**	SampType:	**DUP**			Units:	**µg/L**	Prep Date:	**6/14/2016**		RunNo:	**29979**
Client ID:	**KMW-4 060916**	Batch ID:	**13990**					Analysis Date:	**6/15/2016**		SeqNo:	**566570**
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample Log-In Check List

Client Name:	**KANE**	Work Order Number:	**1606139**
Logged by:	**Clare Griggs**	Date Received:	**6/9/2016 2:48:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☑	NA ☐
	Please refer to item information.			
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	15.9
Sample	15.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1606139

Date: 6/9/16

Page: 1 of: 1

Client: Kane Environmental

Address:

City, State, Zip:

Telephone: Fax:

Project Name: Federal Center South

Project No: 78901 Collected by: KM

Location: Seattle

Report To (PM): Justin

PM Email:

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	KMW-1 060916	6/9	0918	GW					X									
2	KMW-2 060916	"	0958	"					X									
3	KMW-3 060916	"	1034	"					X									
4	KMW-4 060916	"	1118	"					X									
5																		
6																		
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: Silica Gel Cleanup DX

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished	Date/Time	Received	Date/Time
x	6/9/16 1448	x	6/9/16 14:48
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day (STD)

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Kane Environmental, Inc.
Justin Vetter
3815 Woodland Park Ave N, Ste. 102
Seattle, WA 98103

RE: Federal Center South
Lab ID: 1609255

September 27, 2016

Attention Justin Vetter:

Fremont Analytical, Inc. received 4 sample(s) on 9/20/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager

Date: *09/27/2016*

CLIENT: Kane Environmental, Inc.
Project: Federal Center South
Lab Order: 1609255

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1609255-001	KMW-1:W	09/19/2016 12:10 PM	09/20/2016 10:53 AM
1609255-002	KMW-2:W	09/19/2016 12:34 PM	09/20/2016 10:53 AM
1609255-003	KMW-3:W	09/19/2016 1:03 PM	09/20/2016 10:53 AM
1609255-004	KMW-4:W	09/19/2016 1:33 PM	09/20/2016 10:53 AM

Case Narrative

WO#: **1609255**
Date: **9/27/2016**

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

Lab ID: 1609255-001 **Collection Date:** 9/19/2016 12:10:00 PM
Client Sample ID: **KMW-1:W** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 14918		Analyst: WC
Diesel (Fuel Oil)	ND	50.0		µg/L	1	9/26/2016 4:07:00 PM
Heavy Oil	192	100		µg/L	1	9/26/2016 4:07:00 PM
Surr: 2-Fluorobiphenyl	76.3	50-150		%Rec	1	9/26/2016 4:07:00 PM
Surr: o-Terphenyl	79.6	50-150		%Rec	1	9/26/2016 4:07:00 PM

Lab ID: 1609255-002 **Collection Date:** 9/19/2016 12:34:00 PM
Client Sample ID: **KMW-2:W** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 14918		Analyst: WC
Diesel (Fuel Oil)	ND	49.9		µg/L	1	9/26/2016 5:12:00 PM
Heavy Oil	239	99.8		µg/L	1	9/26/2016 5:12:00 PM
Surr: 2-Fluorobiphenyl	75.5	50-150		%Rec	1	9/26/2016 5:12:00 PM
Surr: o-Terphenyl	59.3	50-150		%Rec	1	9/26/2016 5:12:00 PM

Lab ID: 1609255-003 **Collection Date:** 9/19/2016 1:03:00 PM
Client Sample ID: **KMW-3:W** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 14918		Analyst: WC
Diesel (Fuel Oil)	ND	49.7		µg/L	1	9/26/2016 5:44:00 PM
Heavy Oil	110	99.4		µg/L	1	9/26/2016 5:44:00 PM
Surr: 2-Fluorobiphenyl	76.8	50-150		%Rec	1	9/26/2016 5:44:00 PM
Surr: o-Terphenyl	78.9	50-150		%Rec	1	9/26/2016 5:44:00 PM

CLIENT: Kane Environmental, Inc.
Project: Federal Center South

Lab ID: 1609255-004 **Collection Date:** 9/19/2016 1:33:00 PM
Client Sample ID: **KMW-4:W** **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 14918		Analyst: WC
Diesel (Fuel Oil)	ND	49.9		µg/L	1	9/26/2016 6:17:00 PM
Heavy Oil	156	99.9		µg/L	1	9/26/2016 6:17:00 PM
Surr: 2-Fluorobiphenyl	80.1	50-150		%Rec	1	9/26/2016 6:17:00 PM
Surr: o-Terphenyl	81.5	50-150		%Rec	1	9/26/2016 6:17:00 PM

Work Order: 1609255
CLIENT: Kane Environmental, Inc.
Project: Federal Center South

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	**MB-14918**	SampType: **MBLK**		Units: **µg/L**		Prep Date: **9/23/2016**		RunNo: **31978**			
Client ID:	**MBLKW**	Batch ID: **14918**				Analysis Date: **9/26/2016**		SeqNo: **604508**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.1									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	58.2		80.21		72.5	50	150				
Surr: o-Terphenyl	63.7		80.21		79.4	50	150				

Sample ID	**LCS-14918**	SampType: **LCS**		Units: **µg/L**		Prep Date: **9/23/2016**		RunNo: **31978**			
Client ID:	**LCSW**	Batch ID: **14918**				Analysis Date: **9/26/2016**		SeqNo: **604506**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	763	50.1	1,002	0	76.2	65	135				
Surr: 2-Fluorobiphenyl	63.2		80.14		78.8	50	150				
Surr: o-Terphenyl	66.2		80.14		82.6	50	150				

Sample ID	**LCSD-14918**	SampType: **LCSD**		Units: **µg/L**		Prep Date: **9/23/2016**		RunNo: **31978**			
Client ID:	**LCSW02**	Batch ID: **14918**				Analysis Date: **9/26/2016**		SeqNo: **604507**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	836	50.0	999.3	0	83.7	65	135	763.5	9.10	30	
Surr: 2-Fluorobiphenyl	61.6		79.95		77.1	50	150		0		
Surr: o-Terphenyl	62.9		79.95		78.7	50	150		0		

Sample ID	**1609255-001ADUP**	SampType: **DUP**		Units: **µg/L**		Prep Date: **9/23/2016**		RunNo: **31978**			
Client ID:	**KMW-1:W**	Batch ID: **14918**				Analysis Date: **9/26/2016**		SeqNo: **604494**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.9						0		30	
Heavy Oil	198	99.8						191.6	3.28	30	
Surr: 2-Fluorobiphenyl	56.5		79.84		70.8	50	150		0		
Surr: o-Terphenyl	59.6		79.84		74.7	50	150		0		

Work Order: 1609255
CLIENT: Kane Environmental, Inc.
Project: Federal Center South

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1609255-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **9/23/2016** RunNo: **31978**
Client ID: **KMW-1:W** Batch ID: **14918** Analysis Date: **9/26/2016** SeqNo: **604494**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample Log-In Check List

Client Name:	**KANE**	Work Order Number:	**1609255**
Logged by:	**Clare Griggs**	Date Received:	**9/20/2016 10:53:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	6.2
Sample	9.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 2016/09/20 Laboratory Project No (internal): 1609255

Page: 1 of: 1

Client: Kane Environmental
Address: 3815 Woodland Park Ave N, Ste 102
City, State, Zip: Seattle WA 98103
Telephone: 206-691-0476 Fax:

Project Name: Federal Center South
Project No: 78901 Collected by:
Location: Federal Center South
Report To (PM): Justin Vetter
PM Email: jvetter@kane-environmental.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	KMW-1:W	2016/9/19	1210	GW					X										
2	KMW-2:W		1234						X										
3	KMW-3:W		1303						X										
4	KMW-4:W		1333						X										
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

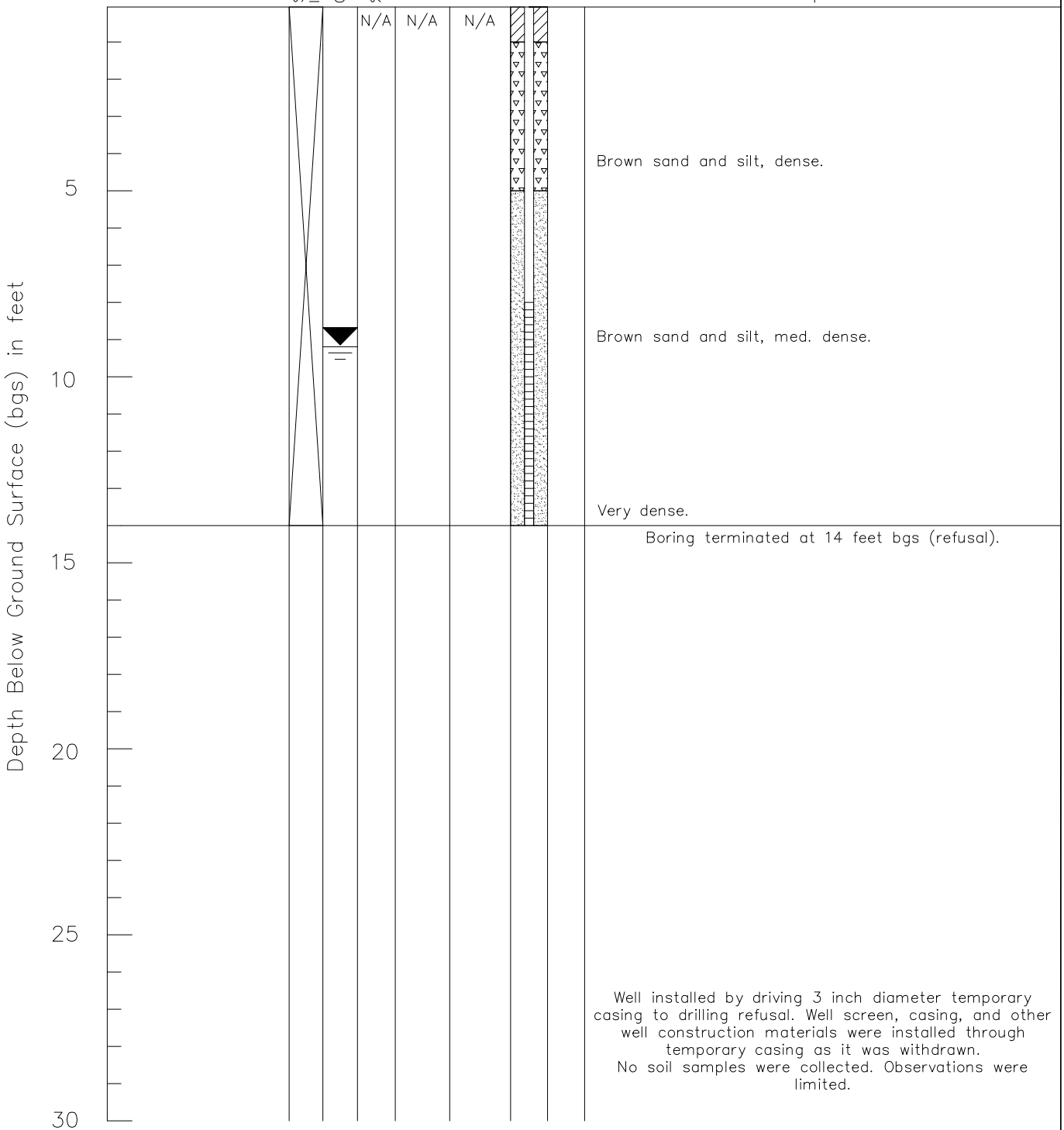
I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	2016-9-20@1053	x	9/20/16 1053
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

ATTACHMENT B
WELL CONSTRUCTION LOGS



Logged by: Eric Nassau
Driller: ESN Northwest
Drilling Method: Direct-Push
Sampling Method: N/A
Casing Type: 1" PVC
Annular Pack: Sand
Slot Size: 0.010"

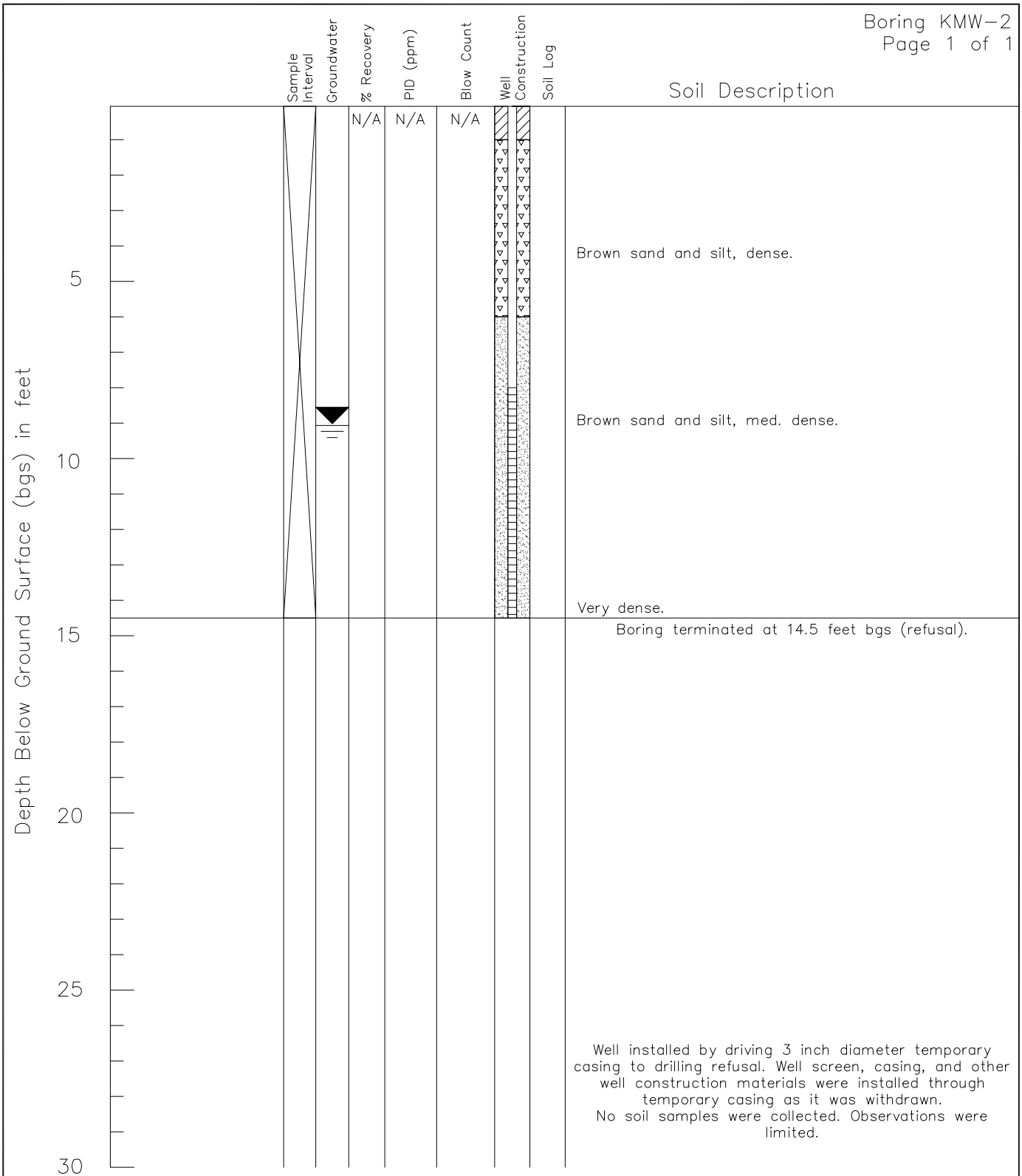
Hammer Size: N/A
Date Drilled: 11/24/15
Hole Diameter: 3 inch
Hole Depth: 14 feet
Well Diameter: 1 inch
Well Depth: 14 feet
Screened Interval: 8-14 feet

Depth to Water (Static): 9.19 feet bgs on 12/4/15
Well Tag: BIM-192
Concrete
Bentonite
Sand
Well Screen

KANE ENVIRONMENTAL INC
3815 Woodland Park Avenue North, Suite 102
Seattle, WA - 206-691-0476
www.kane-environmental.com

Federal Center South
4735 East Marginal Way South
South, Washington

Well Construction Log



Logged by: Eric Nassau
Driller: ESN Northwest
Drilling Method: Direct-Push
Sampling Method: N/A
Casing Type: 1" PVC
Annular Pack: Sand
Slot Size: 0.010"

Hammer Size: N/A
Date Drilled: 11/24/15
Hole Diameter: 3 inch
Hole Depth: 14.5 feet
Well Diameter: 1 inch
Well Depth: 14.5 feet
Screened Interval: 8-14.5 feet

Depth to Water (Static): 9.11 feet bgs on 12/4/15
Well Tag: BIM-193
Concrete
Bentonite
Sand
Well Screen

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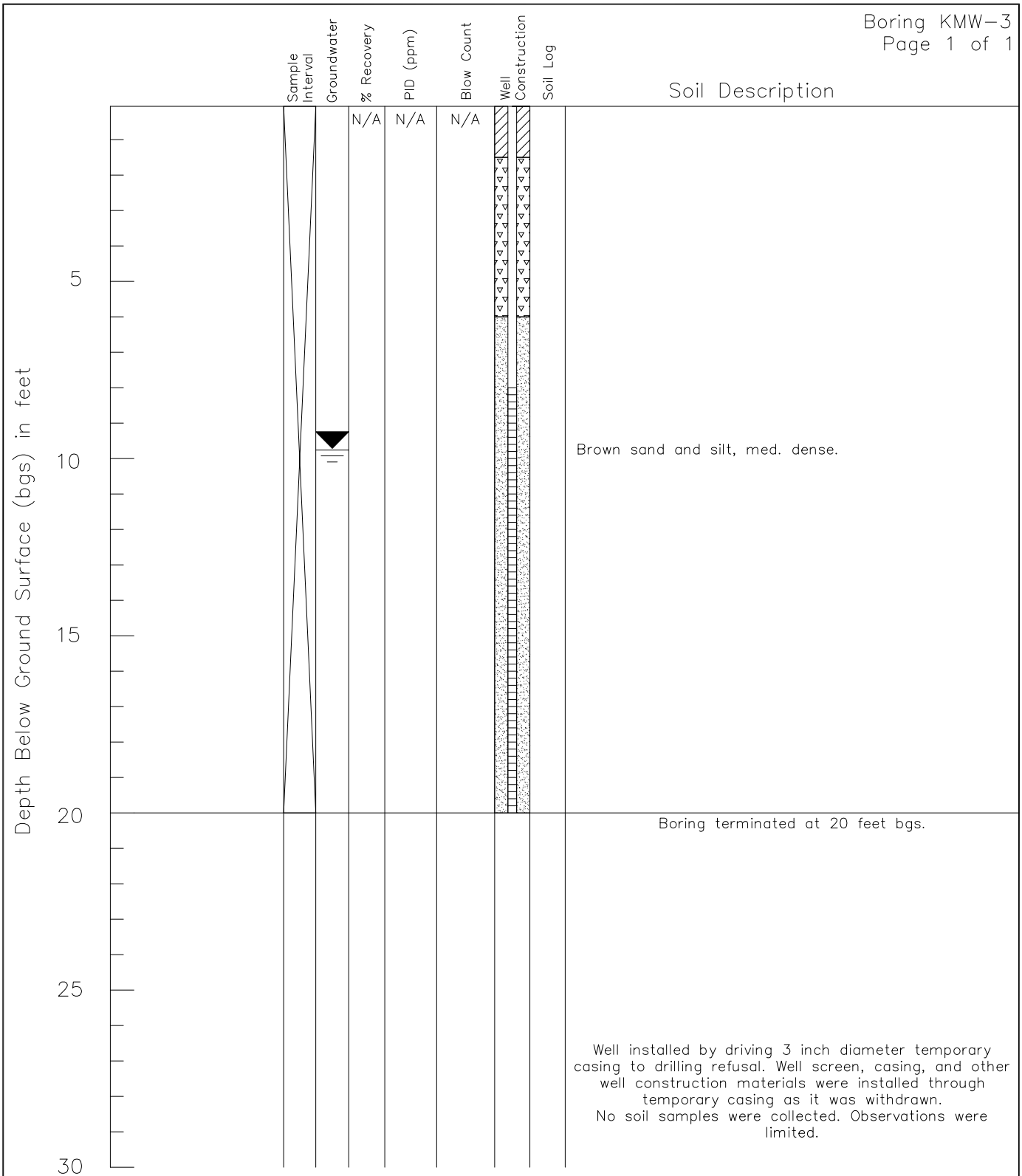

Logged by: Eric Nassau
Driller: ESN Northwest
Drilling Method: Direct-Push
Sampling Method: N/A
Casing Type: 1" PVC
Annular Pack: Sand
Slot Size: 0.010"

Hammer Size: N/A
Date Drilled: 11/24/15
Hole Diameter: 3 inch
Hole Depth: 20 feet
Well Diameter: 1 inch
Well Depth: 20 feet
Screened Interval: 8-20 feet

Depth to Water (Static): 9.76 ft bgs on 12/4/15
Well Tag: BIM-194
Concrete
Bentonite
Sand
Well Screen

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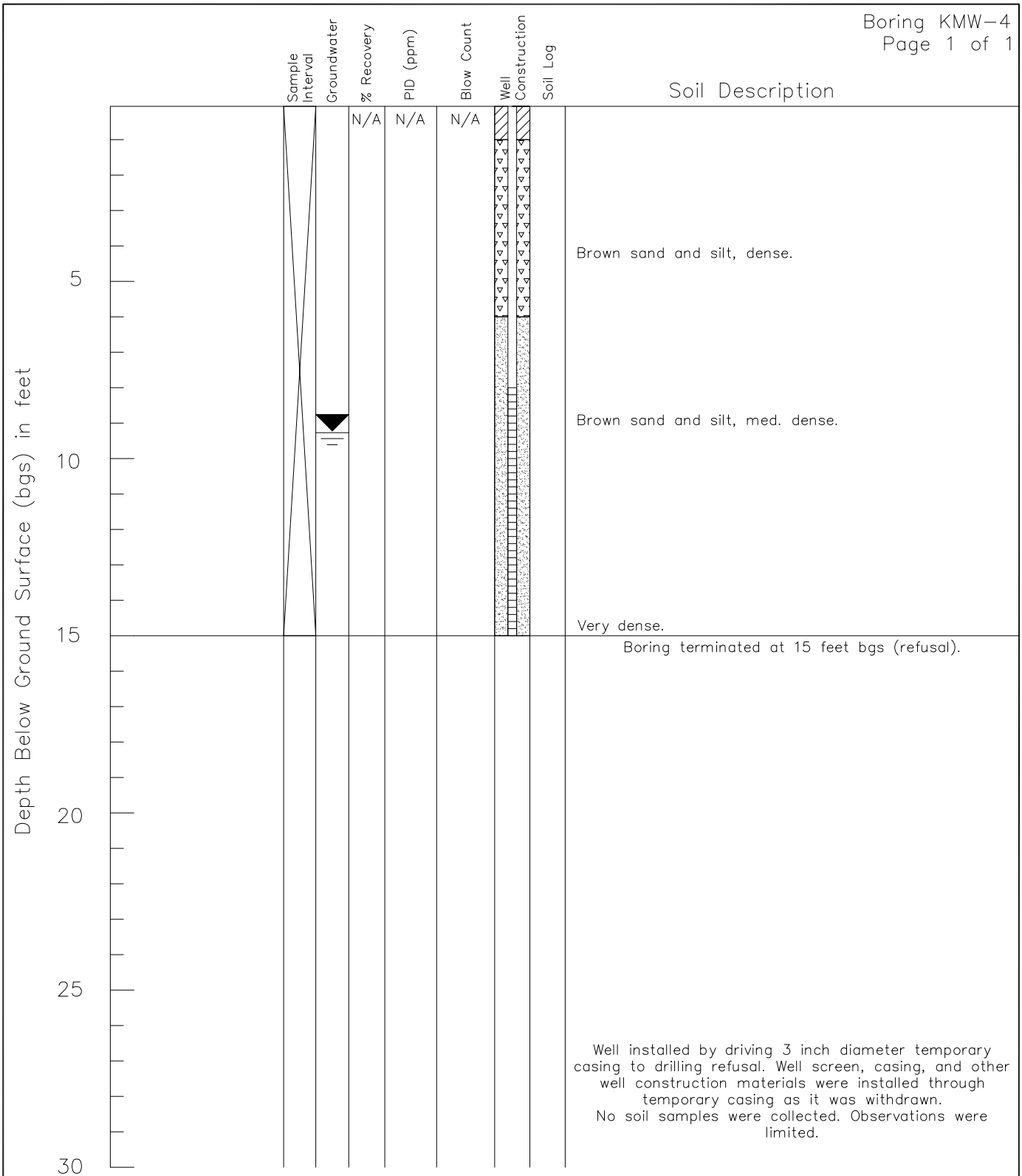

Well installed by driving 3 inch diameter temporary casing to drilling refusal. Well screen, casing, and other well construction materials were installed through temporary casing as it was withdrawn. No soil samples were collected. Observations were limited.

Logged by: Eric Nassau
Driller: ESN Northwest
Drilling Method: Direct–Push
Sampling Method: N/A
Casing Type: 1" PVC
Annular Pack: Sand
Slot Size: 0.010"

Hammer Size: N/A
Date Drilled: 11/24/15
Hole Diameter: 3 inch
Hole Depth: 15 feet
Well Diameter: 1 inch
Well Depth: 15 feet
Screened Interval: 8–15 feet

Depth to Water (Static): 9.27 feet bgs on 12/4/15
Well Tag: BIM–195
Concrete
Bentonite
Sand
Well Screen

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Well Construction Log