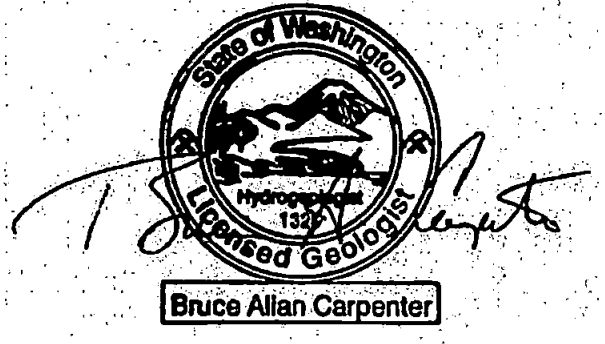
COMPLIANCE GROUNDWATER MONITORING TECHNICAL REPORT

LAKE WASHINGTON APARTMENTS, SEATTLE, WASHINGTON

Prepared for
Bayside Washington, LLC
626 Wilshire Boulevard, #1160
Los Angeles, California 90017

Prepared by
Herrera Environmental Consultants, Inc.
2200 Sixth Avenue, Suite 1100
Seattle, Washington 98121
Telephone: 206/441-9080



January 31, 2013

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Introduction

This report discusses groundwater monitoring well installation and sampling results for three monitoring wells installed adjacent to Building 35 at the Lake Washington Apartments in Seattle, Washington (Figure 1). Residual heating oil has been left in place beneath Building 35. The wells were installed to satisfy groundwater point-of-compliance monitoring requirements for the site, based on procedures outlined in the Compliance Monitoring Well Installation and Sampling Plan (Herrera 2012).

Field Investigation

Three monitoring wells (MW-1, MW-2, and MW-3) were installed on December 20, 2012, according to methods specified in the Compliance Monitoring Well Installation and Sampling Plan (Figure 2). Monitoring well construction diagrams and well logs are provided in Attachment 1. All three wells were sampled on January 3, 2013. The following deviations from the sampling plan occurred:

- The wells were developed on January 2, with a bailer instead of a submersible pump, due to slow recharge. Each well went dry after purging approximately 5 gallons.
- The wells were sampled on January 3 with dedicated bailers instead of using the low-flow technique, due to slow recharge rates at all three locations. Four well volumes were removed from wells MW-1 and MW-2 and then samples were collected when pH, temperature, and specific conductivity had equilibrated. Well MW-3 was bailed dry after removing four well volumes; a sample was collected when the well recharged.

Groundwater conditions are summarized in Table 1; groundwater elevation information is provided on Figure 2. It has been interpreted that groundwater collects in pockets on top of the shallow clay or other confining layer. An implied flow gradient is indicated on Figure 2, reflecting the possibility of a perched zone that extends between these pockets.

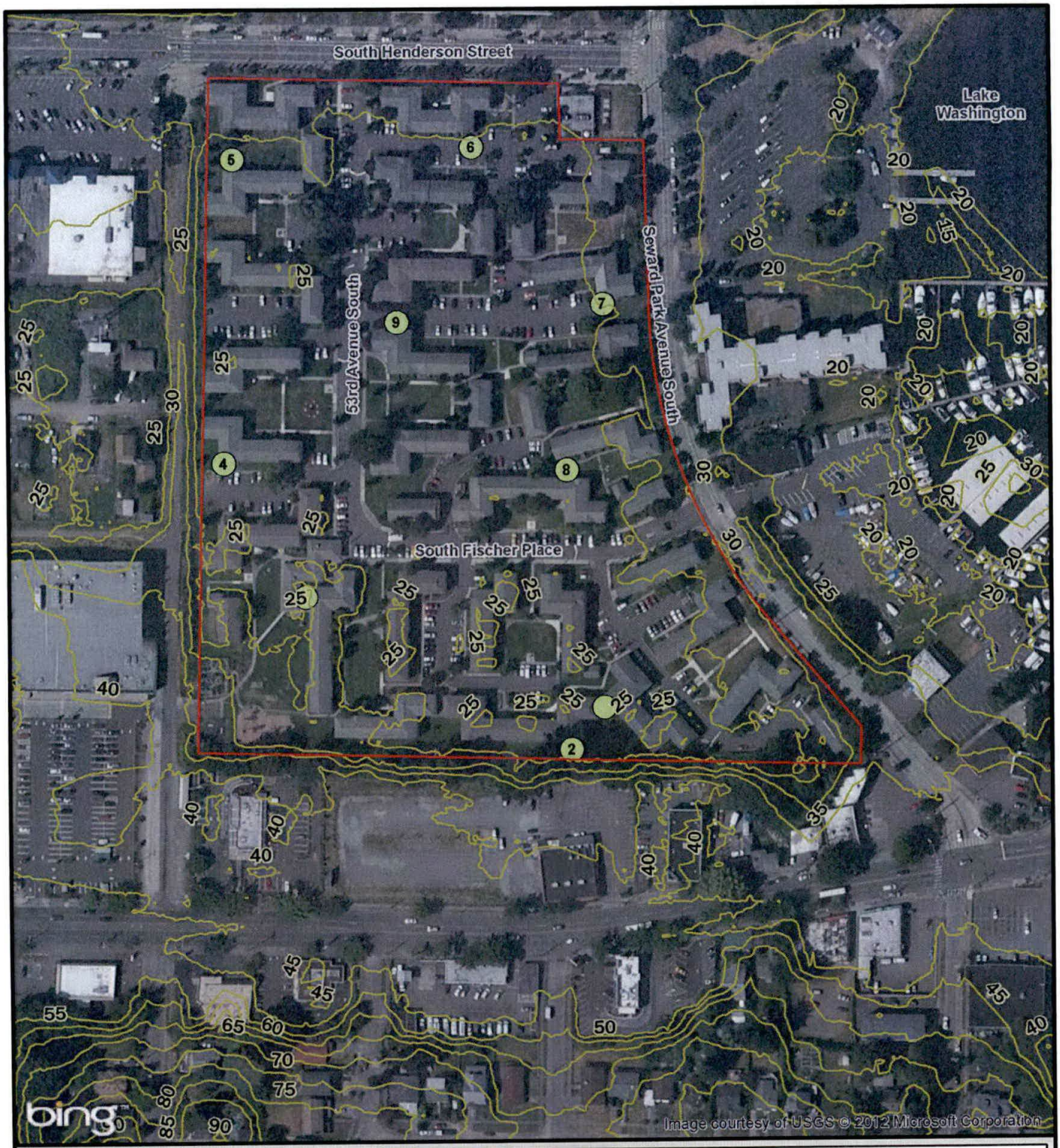
Table 1. Groundwater Conditions, Lake Washington Apartments.

Monitoring Well	Top of Casing Elevation [a] (ft)	Water Level Elevation [a] (ft)	Depth to Water [b] (ft)	Screened Interval [c] (ft)
MW-1	101.31	97.21	4.10	4.5 to 14.5
MW-2	99.54	94.36	5.18	5.5 to 10.5
MW-3	87.94	93.64	4.30	5.5 to 10.5

[a] Relative to arbitrary datum established at 100 feet
[b] Below top of casing
[c] Below ground surface

Analytical Results

No petroleum hydrocarbons were detected in any of the groundwater samples collected from the three wells. A quality assurance report is provided in Attachment 2. All quality assurance objectives were met; there are no limitations on use of the measurement data.



Legend

- Former tank location
- Contour (5-ft)
- Parcel boundary

Figure 1.
Vicinity/site map Lake Washington Apartments, Seattle, Washington.

N

0 100 200 400

Feet

HERRERA

Aerial: Bing Maps, 2012

K:\Projects\11-05186-000\Project\Vicinity_map.mxd (11/29/2012)

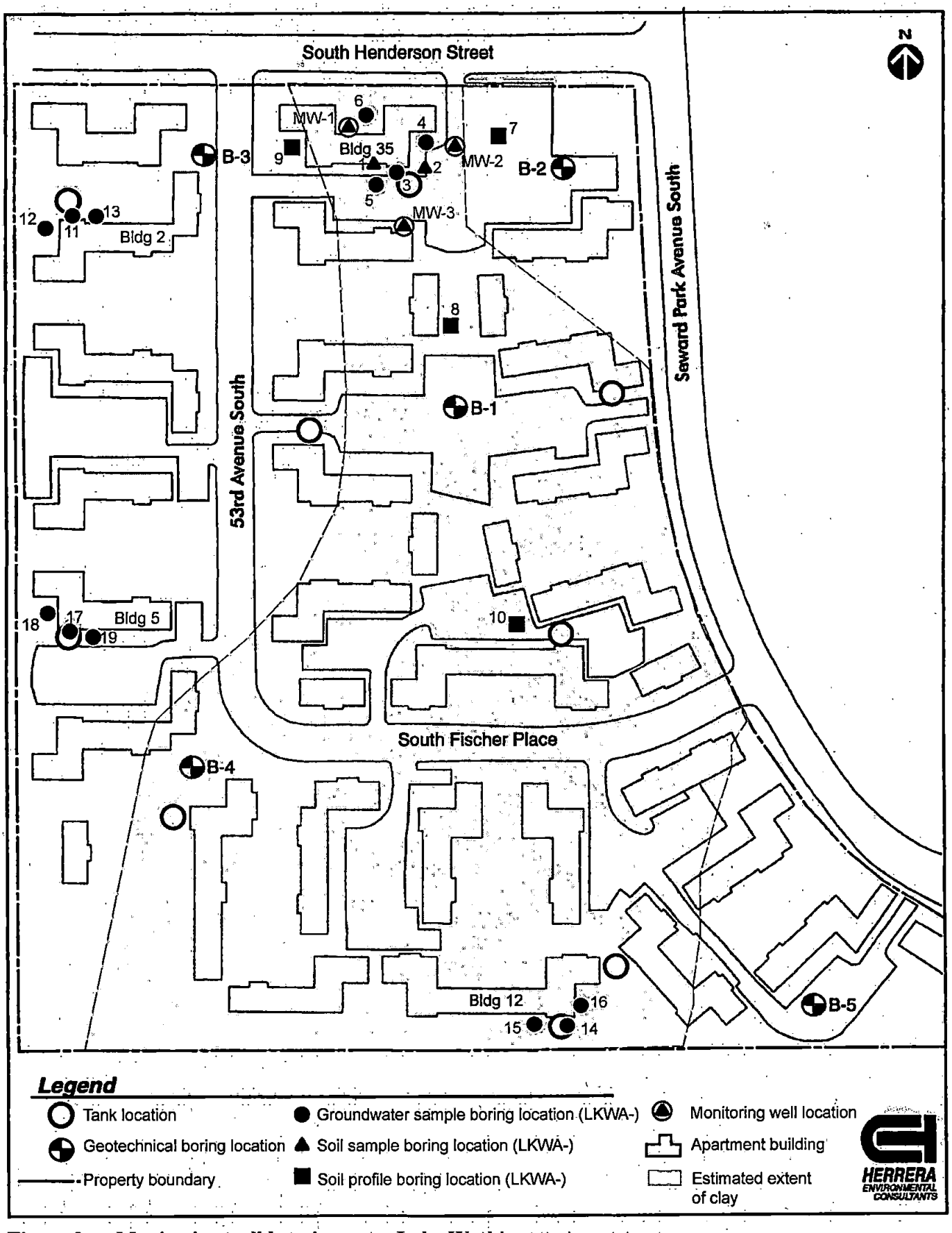


Figure 2. Monitoring well location map, Lake Washington Apartments.

References

Herrera. 2012. Compliance Monitoring Well Installation and Sampling Plan, Lake Washington Apartments, Seattle, Washington. Prepared by Herrera Environmental Consultants, Inc., Seattle, Washington, for Bayside Washington, LLC. December 3, 2012.

ATTACHMENT 1

Boring Logs and Well Construction Diagrams

SOIL BORING AND MONITORING WELL CONSTRUCTION RECORD

HERRERA

Well ID MW-1
Total depth: 15.5
Sheet 1 of 1

Project name: Lake WA Apartments
Project number: 11-05186-000
Client: EPMI
Location: North of Bldg. 35

HEC rep.: Bruce Carpenter
Start Date: 12/20/2012
Compl. Date: 12/20/2012

Drilling Contractor: Cascade
Drilling method: Hollow Stem Auger (HSA)
Sampling method: Split Spoon
Measuring point elev.: —
Ground elevation: —
Air monitoring (y/n): No
Instrument(s): NA

Casing material: Sch 40 PVC
Casing diameter: 2-inch
Screen slot width: 0.010
Casing joint type: Threaded
Filter pack: 2-12 sand
Annular seal: Bentonite
Monument type: Flush-mount

Depth to water	5.65	4.65
Reference point	TOC	TOC
Time	1543	955
Date	1/2/2013	1/3/2013

Monitoring well details: Cement, Bentonite, Filterpack, Well screen

Sample type, interval	% recovery	Blow Counts	Depth (feet, BGS)	Soil group	Soil description
			1		Grass/Topsoil
				ML	Dark brown sandy gravelly SILT, moist
			2		
			3	SM	Gray silty gravelly SAND, moist
			4	CH	Gray silty CLAY, moist
			5		
SS	80	3	6		
		3			
		4	7	ML	Gray sandy SILT, trace clay, moist
			8	CH	Gray silty, CLAY, trace sand, moist
			9		
			10		
SS	100	10	11	ML	Gray gravelly sandy SILT, trace clay, moist
		12			
		15	12		
			13		
			14		
			15	ML	Light brown gravelly sandy SILT, dense, dry
SS	50	50/6	16		

Well details

Last Modified: 01/15/2013
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SOIL BORING AND MONITORING WELL CONSTRUCTION RECORD

HERRERA

Well ID MW-2
Total depth: 13
Sheet 1 of 1

Project name: Lake WA Apartments
Project number: 11-05186-000
Client: EPMI
Location: 24.5' East of SE corner of Bldg. 35
HEC rep.: Bruce Carpenter
Start Date: 12/20/2012
Compl. Date: 12/20/2012

Drilling Contractor: Cascade
Drilling method: Hollow Stem Auger (HSA)
Sampling method: Split Spoon
Measuring point elev.: —
Ground elevation: —
Air monitoring (y/n): No
Instrument(s): NA

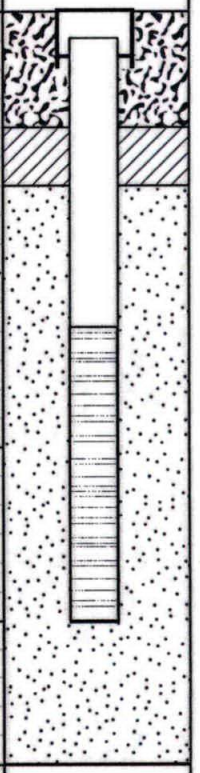
Casing material: Sch 40 PVC
Casing diameter: 2-inch
Screen slot width: 0.010
Casing joint type: Threaded
Filter pack: 2-12 sand
Annular seal: Bentonite
Monument type: Flush-mount

Depth to water	5.85	5.54
Reference point	TOC	TOC
Time	1558	1115
Date	1/2/2013	1/3/2013

Monitoring well details
Cement
Bentonite
Filterpack
Well screen

Sample type, interval	% recovery	Blow Counts	Depth (feet, BGS)	Soil group	Soil description
					Grass/Topsoil
			1	SM	Brown gravelly silty SAND, moist (fill)
			2		
			3		
			4		
			5	ML	Brown clayey SILT, moist
SS	5	8			
		10	6		
		12			
			7		
		6	8	SM	Gray silty SAND, trace clay, moist, dense
SS	100	12			
		50	9		
			10		
		20			
SS	100	50	11	ML	Brown mottled sandy SILT, dense, moist
			12		
SS	100	50	13		dry

Well details



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SOIL BORING AND MONITORING WELL CONSTRUCTION RECORD

HERRERA

Well ID MW-3
Total depth: 11.5
Sheet 1 of 1

Project name: Lake WA Apartments
Project number: 11-05186-000
Client: EPMI
Location: 53' South of SE corner of Bldg. 35
HEC rep.: Bruce Carpenter
Start Date: 12/20/2012
Compl. Date: 12/20/2012

Drilling Contractor: Cascade
Drilling method: Hollow Stem Auger (HSA)
Sampling method: Split Spoon
Measuring point elev.: —
Ground elevation: —
Air monitoring (y/n): No
Instrument(s): NA

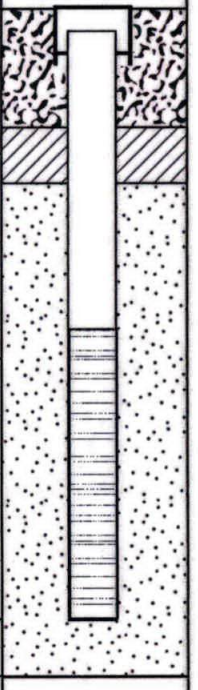
Casing material: Sch 40 PVC
Casing diameter: 2-inch
Screen slot width: 0.010
Casing joint type: Threaded
Filter pack: 2-12 sand
Annular seal: Bentonite
Monument type: Flush-mount

Depth to water	8.09	5.75
Reference point	TOC	TOC
Time	1602	819
Date	1/2/2013	1/3/2013

Monitoring well details: Cement, Filterpack, Bentonite, Well screen

Sample type, interval	% recovery	Blow Counts	Depth (feet, BGS)	Soil group	Soil description
					Grass/Topsoil
			1	SW	Brown gravelly SAND, moist (fill)
			2		
			3	ML	Brown sand SILT, moist
			4		
			5	ML	Light Brown-beige clayey SILT, trace sand, moist
SS	100	3			
		5	6		
		5		PT	Brown Peat w/ silt, moist
			7		
		20	8		
SS	100	5			As above / wood, moist
		6	9		
			10		
		2			
SS	100	3	11	CH	Blue; gray silty CLAY, trace gravel, moist
		3			
			12		

Well details



Last Modified: 01/15/2013
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ATTACHMENT 2

Data Quality Summary Report and Laboratory Data

Herrera Environmental Consultants, Inc.

Memorandum

To	Project File 11-05186-000
From	Gina Catarra, Herrera Environmental Consultants
Date	January 28, 2013
Subject	Data Quality Assurance Review of Lake Washington Apartments Compliance Monitoring Data

This memorandum presents a review of data quality for three groundwater samples collected at the Lake Washington Apartments site on January 3, 2013. All samples were analyzed by OnSite Environmental of Redmond, Washington by Ecology's NWTPH-Dx method.

Results for the following samples were validated.

Sample ID	Date Collected	Matrix	Laboratory Sample Number
MW-1	1/3/2012	Groundwater	01-026-01
MW-2	1/3/2012	Groundwater	01-026-02
MW-3	1/3/2012	Groundwater	01-026-03

Laboratory performance was reviewed in accordance with quality control (QC) criteria outlined in the *Lake Washington Apartments Compliance Monitoring Well Installation and Sampling Plan* (Herrera 2012) and the specified analytical method.

Quality control data summaries submitted by the laboratories were reviewed; raw data were not submitted by the laboratories. Data validation results are summarized below, followed by definitions of data qualifiers.

Custody, Preservation, Holding Times, and Completeness—Acceptable

The samples were properly preserved and sample custody was maintained from sample collection to receipt at the laboratory. All samples were analyzed within the required holding times (7 days for water samples). The laboratory reports were complete and contained results for all samples and tests requested on the chain-of-custody (COC) forms.

Laboratory Reporting Limits—Acceptable

The laboratory reporting limits were reasonable for the specified analytical method.

Method Blank Analysis – Acceptable

Method blanks were analyzed at the required frequency. Method blanks did not contain levels of target analytes above the laboratory reporting limits.

Surrogate Analysis—Acceptable

Surrogate o-Terphynl was analyzed with each sample. The percent recovery values for all samples met the 50 to 150 percent control limits established by the method.

Matrix Spike Analysis—Not Analyzed

Matrix spike (MS) samples were not analyzed, which is acceptable per the analytical method.

Laboratory Duplicate Analysis—Acceptable

Laboratory duplicates were analyzed at the required frequency. The relative percent difference (RPD) was not calculated for the water duplicate, as both values were less than the reporting limit.

Data Quality Assessment Summary

The data quality for all samples was found to be acceptable based on holding time, reporting limit, method blank, surrogate, and laboratory duplicate criteria. Usability of the data is based on the guidance documents previously noted. Upon consideration of the information presented here, the data are acceptable as reported.

Definition of Data Qualifiers

The following data qualifier definitions are taken from *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2002):

U The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

J The associated value is an estimated quantity.

UJ The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

R The data are unusable. (Note: analyte may or may not be present.)

References

Herrera. 2012. Lake Washington Apartments Compliance Monitoring Well Installation and Sampling Plan. Prepared for Bayside Washington, LLC. by Herrera Environmental Consultants, Inc., Seattle, Washington. December 2012.

USEPA. 2002. Contract laboratory program national functional guidelines for inorganic data review. US Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C. (EPA-540/R-01/008).

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 8, 2013

Bruce Carpenter
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 1100
Seattle, WA 98121

Re: Analytical Data for Project 11-05186-000
Laboratory Reference No. 1301-026

Dear Bruce:

Enclosed are the analytical results and associated quality control data for samples submitted on January 3, 2013.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: January 8, 2013
Samples Submitted: January 3, 2013
Laboratory Reference: 1301-026
Project: 11-05186-000

Case Narrative

Samples were collected on January 3, 2013 and received by the laboratory on January 3, 2013. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: January 8, 2013
Samples Submitted: January 3, 2013
Laboratory Reference: 1301-026
Project: 11-05186-000

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1**					
Laboratory ID:	01-026-01					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	1-4-13	1-4-13	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	1-4-13	1-4-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*78*	*50-150*				
Client ID:	**MW-2**					
Laboratory ID:	01-026-02					
Diesel Range Organics	**ND**	0.27	NWTPH-Dx	1-7-13	1-7-13	
Lube Oil Range Organics	**ND**	0.43	NWTPH-Dx	1-7-13	1-7-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				
Client ID:	**MW-3**					
Laboratory ID:	01-026-03					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	1-4-13	1-4-13	
Lube Oil Range Organics	**ND**	0.42	NWTPH-Dx	1-4-13	1-4-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*61*	*50-150*				

Date of Report: January 8, 2013
Samples Submitted: January 3, 2013
Laboratory Reference: 1301-026
Project: 11-05186-000

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0104W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	1-4-13	1-4-13	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	1-4-13	1-4-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*92*	*50-150*				
Laboratory ID:	MB0107W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	1-7-13	1-7-13	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	1-7-13	1-7-13	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*97*	*50-150*				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	01-026-03						
	ORIG	DUP					
Diesel Range Organics	**ND**	**ND**			NA	NA	
Lube Oil Range Organics	**ND**	**ND**			NA	NA	
Surrogate:							
o-Terphenyl			*61* *85*	*50-150*			
Laboratory ID:	01-042-01						
	ORIG	DUP					
Diesel Fuel #2	**7.27**	**7.18**			1	NA	
Lube Oil Range Organics	**ND**	**ND**			NA	NA	U1
Surrogate:							
o-Terphenyl			*129* *127*	*50-150*			

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Herrera Environmental
Project Number: 11-05186-000
Project Name: LKWA Apts.
Project Manager: Bree Carpenter
Sampled by: Bree Carpenter

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 01-026

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals/ MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664A	% Moisture
1	MW-1	1/3/13	10:38	W	2				X												
2	MW-2	↓	11:37	↓	↓				X												
3	MW-3	↓	11:57	↓	↓				X												

	Signature	Company	Date	Time
Relinquished	[signature]	Herrera Environmental	1/3/13	13:30
Received	[signature]	OSE	1/3/13	1600
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Sent via Courier

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐

Electronic Data Deliverables (EDDs) X EIMS