

Appendix G

Monitoring Well Sampling Logs

Low-Flow Sampling Calibration Form

DATE: 5/16/19
SITE/LOCATION: Woodworth Ave MGP, Yonkers, NY
INSTRUMENT TYPE & SERIAL NUMBER: YSI Pro DSS S# 045600

PROJECT NUMBER: 1900674

	Time	Temperature (°C)	pH 4 (s.u.)	pH 7 (s.u.)	pH 10 (s.u.)	Zero Spec. Cond. (ms/cm)	Span Spec. Cond. (ms/cm)	Zero Turbidity (NTU)	Span Turbidity (NTU)	Eh/ORP (mV)	Zero DO (mg/L)	100% Sat. DO (mg/L) or (%)
Adjusted Reagent Values (if applicable)	1015	20°	4.00	7.02	10.04							
Initial Calibration Error Range	-	+/- 0.1 deg	+/- 0.05	-	+/- 0.05	+/- 1 %	+/- 1 %	+/- 5%	+/- 5%	-	-	-
Initial Calibration Value			3.99	7.00	10.15		1,413	0.00	124.0	240.0		99.7
Initial Calibration Check Error Range	-	-	-	+/- 0.1	-	+/- 1 %	+/- 1 %	+/- 10%	+/- 10%	-	+/- 0.3 mg/L	-
Initial Calibration Check Value		-	-		-		1,643	1.97	127.0	243.2		101.3
Drift Check Error Range	-	-	-	+/- 0.2	-		% Recovery ± 1%		% Recovery ± 10%	-	-	-
Drift Check Value (Every 3 Hours)												

HORIBA ONLY

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ANALYST
SIGNATURE

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Quick Reference Guide - Refer to Standard Operating Procedures for full details

RETAIN ALL CALIBRATION DOCUMENTS PROVIDED WITH THE INSTRUMENT FOR 5 YEARS

pH
SM4500 HB-11 Span calibration with 4 pH and 10 pH initial within +/- 0.05 pH, subsequent check within +/- 0.1 pH.
Drift check **every three hours of use with pH 7 buffer** to confirm pH reading is within +/- 0.2 units of reagent.

Turbidity
SM2130 B-11 Zero/span calibration for each day of use
Calibration check immediately after initial within 10% of true value (SM2130).

Conductivity
SM2510 B-11 Zero/span calibration for each day of use (Horiba). Span calibration: for each day of use (YSI).
Calibrate in air for zero and with reagent for span (Horiba). Calibrate with reagent for span (YSI) Verify by check within 1% of true value of reagent.

Dissolved Oxygen
SM4500 OG-11 Zero (NaSO3 solution)/span calibration for each day of use. Zero calibration check immediately after initial +/- 0.3mg/L. (Horiba)
100% Water saturated air calibration for each day of use (YSI)
Zero/span calibration once per week using Modified Winkler Test, perform according to SOP or return instrument to rental company.

Temperature
SM2550 B-00 Calibrate against National Bureau of Standards thermometer regularly
Temperature should be within +/- 0.1 deg Celsius.

% Recovery
(Check/True*100)

Note: Refer to pH-Temperature range table for adjusted values. Refer to DO-Temperature Saturation Table

Revision 2.4

Low-Flow Sampling Calibration Form

DATE: 5/16/19

PROJECT NUMBER: 1900674

SITE/LOCATION: Woodward Ave MGP, Yonkers NY

INSTRUMENT TYPE & SERIAL NUMBER: YSI Pro DSS S#045601

	Time	Temperature (°C)	pH 4 (s.u.)	pH 7 (s.u.)	pH 10 (s.u.)	Zero Spec. Cond. (ms/cm)	Span Spec. Cond. (ms/cm)	Zero Turbidity (NTU)	Span Turbidity (NTU)	Eh/ORP (mV)	Zero DO (mg/L)	100% Sat. DO (mg/L) or (%)
Adjusted Reagent Values (if applicable)	1015	20.9	4.00	7.02	10.12		1,413	0.0	124.0	240.0		99.7
Initial Calibration Error Range	-	+/- 0.1 deg	+/- 0.05	-	+/- 0.05	+/- 1 %	+/- 1 %	+/- 5%	+/- 5%	-	-	-
Initial Calibration Value			3.84		10.17							
Initial Calibration Check Error Range	-	-	-	+/- 0.1	-	+/- 1 %	+/- 1 %	+/- 10%	+/- 10%	-	+/- 0.3 mg/L	-
Initial Calibration Check Value		-	-	7.01	-		1,725	-0.15	152.0	242.4		103.4
Drift Check Error Range	-	-	-	+/- 0.2	-		% Recovery ± 1%		% Recovery ± 10%	-	-	-
Drift Check Value (Every 3 Hours)												

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ANALYST
SIGNATURE:



Quick Reference Guide - Refer to Standard Operating Procedures for full details

RETAIN ALL CALIBRATION DOCUMENTS PROVIDED WITH THE INSTRUMENT FOR 5 YEARS

pH
SM4500 HB-11 Span calibration with 4 pH and 10 pH initial within +/- 0.05 pH, subsequent check within +/- 0.1 pH.
Drift check every three hours of use with pH 7 buffer to confirm pH reading is within +/- 0.2 units of reagent

Turbidity
SM2130 B-11 Zero/span calibration for each day of use
Calibration check immediately after initial within 10% of true value (SM2130)

Conductivity
SM2510 B-11 Zero/span calibration for each day of use (Horiba). Span calibration for each day of use (YSI)
Calibrate in air for zero and with reagent for span (Horiba). Calibrate with reagent for span (YSI). Verify by check within 1% of true value of reagent.

Dissolved Oxygen
SM4500 OG-11 Zero (NaSO3 solution)/span calibration for each day of use. Zero calibration check immediately after initial +/- 0.3mg/L. (Horiba)
100% Water saturated air calibration for each day of use. (YSI)
Zero/span calibration once per week using Modified Winkler Test, perform according to SOP or return instrument to rental company.

Temperature
SM2550 B-00 Calibrate against National Bureau of Standards thermometer regularly
Temperature should be within +/- 0.1 deg Celsius

% Recovery
(Check/True*100)

Note: Refer to pH-Temperature range table for adjusted values. Refer to DO-Temperature Saturation Table

Revision 2.4



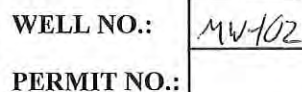
LOW-FLOW
GROUNDWATER SAMPLE
COLLECTION RECORD

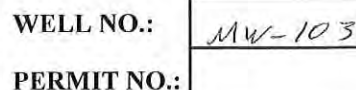
WELL NO.:

MW-101

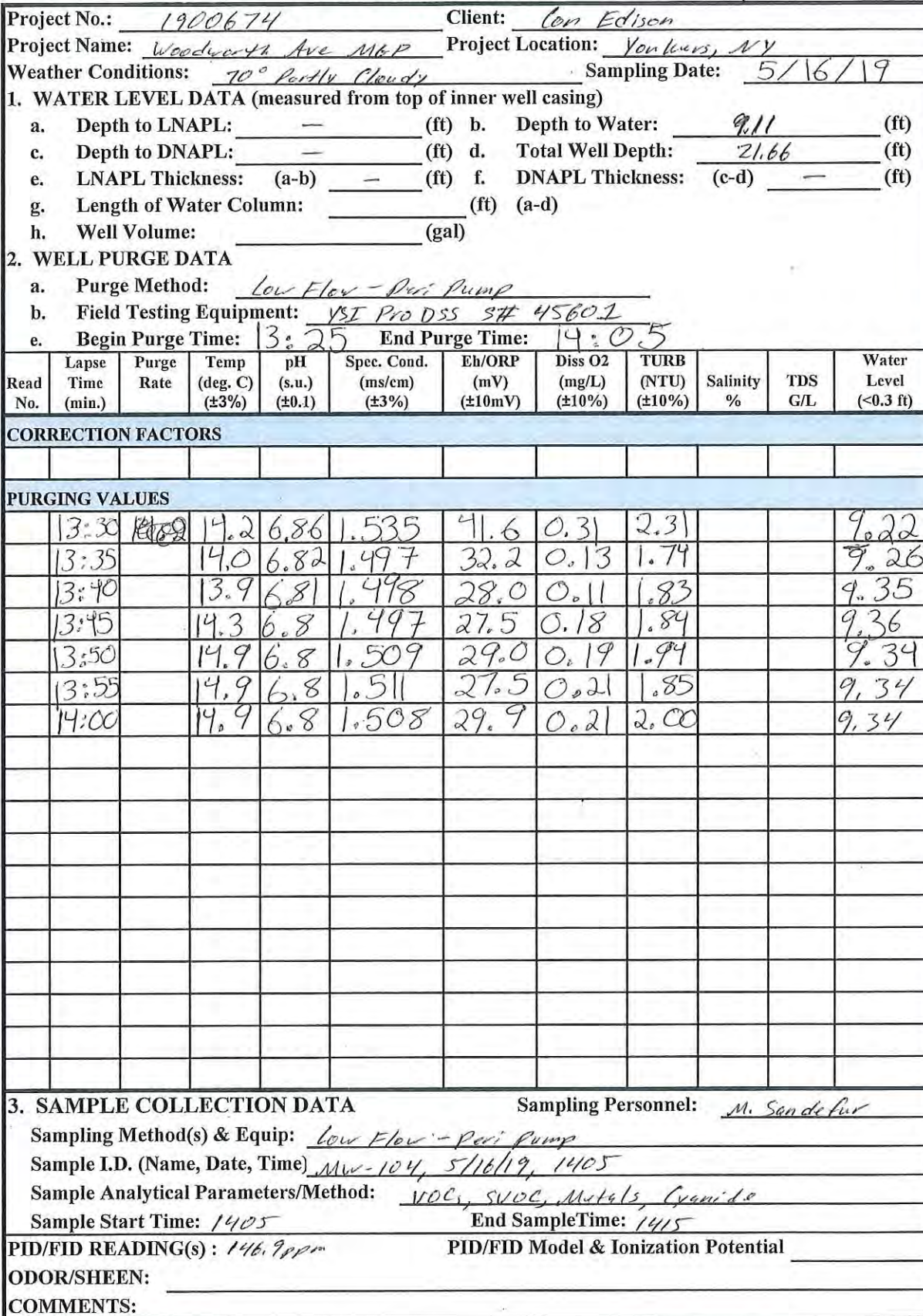
PERMIT NO.:

Project No.: 1900674		Client: Lon Ed									
Project Name: Woodworth Ave - Con Ed		Project Location: Yonkers, NY									
Weather Conditions: 71° partly cloudy		Sampling Date: 5/16/19									
1. WATER LEVEL DATA (measured from top of inner well casing)											
a.	Depth to LNAPL: —	(ft)	b.	Depth to Water: 10.48	(ft)						
c.	Depth to DNAPL: —	(ft)	d.	Total Well Depth: 20.08	(ft)						
e.	LNAPL Thickness: (a-b) —	(ft)	f.	DNAPL Thickness: (c-d) —	(ft)						
g.	Length of Water Column: —	(ft)	(a-d)								
h.	Well Volume: —	(gal)									
2. WELL PURGE DATA											
a.	Purge Method: Low Flow - Peristaltic Pump										
b.	Field Testing Equipment: YSI ProDSS SH 045600										
e.	Begin Purge Time: 1320	End Purge Time:									
Read No.	Lapse Time (min.)	Purge Rate	Temp (deg. C) (±3%)	pH (s.u.) (±0.1)	Spec. Cond. (ms/cm) (±3%)	Eh/ORP (mV) (±10mV)	Diss O2 (mg/L) (±10%)	TURB (NTU) (±10%)	Salinity %	TDS G/L	Water Level (<0.3 ft)
CORRECTION FACTORS											
PURGING VALUES											
	1325	0.05	16.7	7.58	3.050	-471.0	11.7%	1.53			10.59
	1330	0.05	15.8	7.60	2.994	-455.3	10.9%	1.82			10.75
	1335	0.05	16.9	7.59	2.946	-418.0	10.8%	3.35			10.83
	1340	0.05	17.0	7.58	2.953	-373.0	10.7%	3.17			10.92
	1345	0.05	16.8	7.54	2.968	-461.3	6.3%	3.20			11.11
	1350	0.05	16.6	7.60	2.979	-470.2	5.7%	2.51			11.23
	1355	0.05	16.4	7.61	2.983	-480.1	5.4%	2.30			11.30
3. SAMPLE COLLECTION DATA											
Sampling Method(s) & Equip: Peristaltic Pump - Low Flow						Sampling Personnel: Erik Strandberg					
Sample I.D. (Name, Date, Time) MW-101 5/16/19 1355											
Sample Analytical Parameters/Method: VOCs, SVOCs, Metals, Cyanide											
Sample Start Time: 1355						End Sample Time: 1405					
PID/FID READING(s): 7.4 ppm						PID/FID Model & Ionization Potential					
ODOR/SHEEN:											
COMMENTS:											

[illegible]



COMMENTS: Tuberc (a) WT was stained with LNAPL



LOW-FLOW GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

MW-109

PERMIT NO.:[illegible]

LOW-FLOW GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

MW-110

PERMIT NO.:

[illegible]

LOW-FLOW GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

MM-111

PERMIT NO.:[illegible]

Low-Flow Sampling Calibration Form

DATE: 7/22/19

PROJECT NUMBER: 1900674

SITE/LOCATION: Woodworth Ave MGP, Yonkers, NY

INSTRUMENT TYPE & SERIAL NUMBER: YSE Pro-DSS S# 16D105015

	Time	Temperature (°C)	pH 4 (s.u.)	pH 7 (s.u.)	pH 10 (s.u.)	Zero Spec. Cond. (ms/cm)	Span Spec. Cond. (ms/cm)	Zero Turbidity (NTU)	Span Turbidity (NTU)	Eh/ORP (mV)	Zero DO (mg/L)	100% Sat. DO (mg/L) or (%)
Adjusted Reagent Values (if applicable)	0745	26.1	4.00	7.00	10.00		0.718	0.0	126.0			100.0%
Initial Calibration Error Range	-	+/- 0.1 deg	+/- 0.05	-	+/- 0.05	+/- 1 %	+/- 1 %	+/- 5%	+/- 5%	-	-	-
Initial Calibration Value			4.01		10.09		0.662	1.3	130.5			100.3%
Initial Calibration Check Error Range	-	-	-	+/- 0.1	-	+/- 1 %	+/- 1 %	+/- 10%	+/- 10%	-	+/- 0.3 mg/L	-
Initial Calibration Check Value			-	7.04	-							
Drift Check Error Range	-	-	-	+/- 0.2	-		% Recovery ± 1%		% Recovery ± 10%	-	-	-
Drift Check Value (Every 3 Hours)	1100	28.4	4.05	7.01	10.05		0.674	0.9	155.7			97.9%

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RETAIN ALL CALIBRATION DOCUMENTS PROVIDED WITH THE INSTRUMENT FOR 5 YEARS

pH
SM4500 HB-11 Span calibration with 4 pH and 10 pH initial within +/- 0.05 pH, subsequent check within +/- 0.1 pH.
Drift check **every three hours of use with pH 7 buffer** to confirm pH reading is within +/- 0.2 units of reagent.

Turbidity
SM2130 B-11 Zero/span calibration for each day of use.
Calibration check immediately after initial within 100% of true value (SM2130)

Conductivity
SM2510 B-11 Zero/span calibration for each day of use (Horiba). Span calibration for each day of use (YSI).
Calibrate in air for zero and with reagent for span (Horiba). Calibrate with reagent for span (YSI). Verify by check within 1% of true value of reagent.

Dissolved Oxygen
SM4500 OG-11 Zero (NaSO3 solution)/span calibration for each day of use. Zero calibration check immediately after initial +/- 0.3 mg/L. (Horiba)
100% Water saturated air calibration for each day of use. (YSI)
Zero/span calibration once per week using Modified Winkler Test, perform according to SOP or return instrument to rental company.

Temperature
SM2550 B-00 Calibrate against National Bureau of Standards thermometer regularly.
Temperature should be within +/- 0.1 deg Celsius

ANALYST
SIGNATURE:

Matthew Seif

% Recovery
(Check/True*100)

Note: Refer to pH-Temperature range table for adjusted values Refer to DO-Temperature Saturation Table

Revision 2.4

GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

MW-11k

PERMIT NO.:

Project No.: 1900674

Client: Con Edison

Project Name: Wardworth Ave MOP

Project Location: Yonkers, NY

Weather Conditions: 84° Partly Cloudy

Sampling Date: 7/22/19

1. WATER LEVEL DATA (measured from top of inner well casing)

- | | |
|---------------------------------------|--|
| a. Depth to LNAPL: _____ (ft) | b. Depth to Water: <u>1.28</u> (ft) |
| c. Depth to DNAPL: _____ (ft) | d. Total Well Depth: <u>19.30</u> (ft) |
| e. LNAPL Thickness: (a-b) _____ (ft) | f. DNAPL Thickness: (c-d) _____ (ft) |
| g. Length of Water Column: _____ (ft) | (a-d) |
| h. Well Volume: _____ (gal) | Conversion Factors |

2. WELL PURGE DATA

- a. Purge Method: Low Flow w/ Peri Pump
b. Field Testing Equipment: ISE-Pro-DSS S#1601057015
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 1325 End Purge Time: 1355

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate	Temp (deg. C) (±10%)	pH (s.u.) (±0.1)	Spec. Cond. (ms/cm) (±3%)	Eh/ORP (mV) (±10mV)	Diss O2 (mg/L) (±10%)	TURB (NTU) (±10%)	Salinity %	TDS G/L	Water Level (ft)
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CORRECTION FACTORS

[illegible]

PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: C. Tenenbruno

Sampling Method(s) & Equip: Low Flow w/ Peri Pump

Sample I.D. (Name, Date, Time): NW-111, 7/22/19

Sample Analytical Parameters/Method: TCL, VOC, TCL SVOC, TCL Metals

Sampling Depth: 14.5 ft bas

Sample Start Time: 1355

End SampleTime: 1405

PID/FID READING(S) : 0.0 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:**COMMENTS:**

GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

11W-112

PERMIT NO.:

Project No.: 1900674

Client: *Carl Edison*

Project Name: Woodward Ave MCP

Project Location: *Yonkers, NY*

Weather Conditions: 79° Partly Cloudy

Sampling Date: 7/22/19

1. WATER LEVEL DATA (measured from top of inner well casing)

- | | |
|---------------------------------------|--|
| a. Depth to LNAPL: _____ (ft) | b. Depth to Water: <u>2.37</u> (ft) |
| c. Depth to DNAPL: _____ (ft) | d. Total Well Depth: <u>10.25</u> (ft) |
| e. LNAPL Thickness: (a-b) _____ (ft) | f. DNAPL Thickness: (c-d) _____ (ft) |
| g. Length of Water Column: _____ (ft) | (a-d) |
| h. Well Volume: _____ (gal) | Conversion Factors |

2. WELL PURGE DATA

- a. Purge Method: Low Flow w/ Perist pump
b. Field Testing Equipment: VSI-Pro DS S# 160105015
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 1000 End Purge Time: 1035

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate	Temp (deg. C) (±10%)	pH (s.u.) (±0.1)	Spec. Cond. (ms/cm) (±3%)	Eh/ORP (mV) (±10mV)	Diss O2 (mg/L) (±10%)	TURB (NTU) (±10%)	Salinity %	TDS G/L	Water Level (ft)
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CORRECTION FACTORS

[illegible]

PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: *M. Sendelev*

Sampling Method(s) & Equip: *Low Flow T Peri Pump*

Sample I.D. (Name, Date, Time): MW-112, 7/22/19 1035

Sample Analytical Parameters/Method: *TCL VOCs, TCL SVOCs, TCL Metals*

Sampling Depth: 5 ft bgs

Sample Start Time: 1035 End SampleTime: 1050

PID/FID READING(s) : 147 ppm

PID/FID Model & Ionization Potential

ODOR/SMELL: Strong naphthalene like odors/smells present on water.

COMMENTS: w/ Dep 20190422, MS/MSD

GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

Box 113

PERMIT NO.:

Project No.: 1900674

Client: *Con Edison*

Project Name: Woodsview Ave NLP

Project Location: *Yonkers, NY*

Weather Conditions: 84° Partly Cloudy

Sampling Date: 7/22/19

1. WATER LEVEL DATA (measured from top of inner well casing)

- | | | | | | | | |
|----|-------------------------|----------------|-------|-------|--|----------------|------|
| a. | Depth to LNAPL: | <u>1</u> | (ft) | b. | Depth to Water: | <u>3.51</u> | (ft) |
| c. | Depth to DNAPL: | <u>1</u> | (ft) | d. | Total Well Depth: | <u>17.30</u> | (ft) |
| e. | LNAPL Thickness: | (a-b) <u>0</u> | (ft) | f. | DNAPL Thickness: | (c-d) <u>—</u> | (ft) |
| g. | Length of Water Column: | | (ft) | (a-d) | <div style="border: 1px solid black; padding: 5px; text-align: center;">Conversion Factors</div> | | |
| h. | Well Volume: | | (gal) | | | | |

2. WELL PURGE DATA

- a. Purge Method: LOW Flow w/ Pirri Pump
b. Field Testing Equipment: Y3E-Pro-DSS SH 16D105015
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 1130 End Purge Time: 1205

Conversion Factors (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

Read No.	Lapse Time (min.)	Purge Rate	Temp (deg. C) (±10%)	pH (s.u.) (±0.1)	Spec. Cond. (ms/cm) (±3%)	Eh/ORP (mV) (±10mV)	Diss O2 (mg/L) (±10%)	TURB (NTU) (±10%)	Salinity %	TDS G/L	Water Level (ft)
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CORRECTION FACTORS

[illegible]

PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: *M. Sandoval*

Sampling Method(s) & Equip: Low Flow T Per. Pump

Sample I.D. (Name, Date, Time): mw-113, 7/22/19

Sample Analytical Parameters/Method: TCL VOC, TCL SVOC, TCL M/Ls

Sampling Depth: 10 ft bgs

Sample Start Time: 1205

End SampleTime: 12/5

PID/FID READING(s) : 12.1 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS:

Project number and name Conec water north one Sampling personnel Patricia Bressing Sample date 11/14/19 Well ID mw-101

Turb. clear NTU

- 1 Position tubing at midpoint of saturated screened interval
- 2 Minimize drop in water level and purge until parameters are stable
- 3 Disconnect flow thru cell during sampling
- 4 Call Project Manager if issues arise (e.g. stabilization takes more than 2 hrs, well goes dry, odd data).
- 5 For VPH and VOC samples, if stabilization flow rate is less than 200 ml/min, contact PM

Turb. +/- 10% if values >1 NTU

6/15/2011

Project number and name	2013 Canal noise work on	Sampling personnel	BS	Sample date	11/14/19	Well ID	MW-110
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Turb. 1100 NTU

Well depth

Stabilized flow rate = flow rate with no further drawdown

[illegible]

Purge water disposal? to ground drummed other:

Sp. Cond. +/- 3%
DO +/- 10%
ORP +/- 10 mV
pH +/- 0.1 Std Units
Temp. +/- 3%
Turb. +/- 10% if values > 1 NTU

- 1 Position tubing at midpoint of saturated screened interval
- 2 Minimize drop in water level and purge until parameters are stable
- 3 Disconnect flow thru cell during sampling
- 4 Call Project Manager if issues arise (e.g. stabilization takes more than 2 hrs, well goes dry, odd data).
- 5 For VPH and VOC samples, if stabilization flow rate is less than 200 ml/min, contact PM

