

Appendix P Groundwater Sampling Forms



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPE-MW-15

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Sunny 45°F Sampling Date: 12/13/2012

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

- a. Depth to LNAPL: _____ (ft) b. Depth to Water: 22.87 (ft)
c. Depth to DNAPL: _____ (ft) d. Total Well Depth: 25.34 (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

(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: low flow
b. Field Testing Equipment: QEC Bladder Pump
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: 1220

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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PRE PURGE VALUES

00	—	500	15.27	6.13	1.20	232	458	0.0	0.06	0.762	22.87
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PURGING VALUES

01	5min	500	17.96	6.67	1.17	222	1.93	50.0	0.06	.751	
02	5min	500	18.56	6.75	1.18	216	1.44	57.0	0.06	.755	
03	5min	500	18.57	6.78	1.18	212	1.42	273	0.06	.757	
04	5min	500	18.73	6.80	1.19	205	1.23	83.0	0.06	.760	
05	5min	500	18.81	6.80	1.19	197	1.21	32.7	0.06	.760	22.91
06	5min	500	18.93	6.83	1.19	188	1.05	24.1	0.06	.758	
07	5min	500	19.00	6.83	1.19	179	0.88	11.6	0.06	.759	22.91
08	5min	500	19.07	6.84	1.18	174	0.85	9.8	0.06	.755	
09	5min	500	19.15	6.84	1.18	163	0.77	5.3	0.06	.754	
10	5min	500	19.28	6.87	1.18	157	0.69	6.3	0.06	.754	22.90

3. SAMPLE COLLECTION DATA

Sampling Personnel:

Jerry Parke / Garret C Schmidt

Sampling Method(s) & Equip: low flow - QEC Bladder Pump

Sample I.D. (Name, Date, Time): GPE-MW-15, 12/13/12, 1225

Sample Analytical Parameters/Method: _____

Sample Start Time: 1220

End Sample Time: 1235

PID/FID READING(s): 0.0

PID/FID Model & Ionization Potential Mini RAE 3000

ODOR/SHEEN:

COMMENTS:





GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPE-MW-25

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Mostly Sunny 45°F Sampling Date: 12/19/2012

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

- a. Depth to LNAPL: (ft) b. Depth to Water: 3.85 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: 12.99 (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

(a x cf = b)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: Low-Flow
b. Field Testing Equipment: DEC Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 1255 End Purge Time: 1345

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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PRE PURGE VALUES

00	-	300	14.48	6.66	4.53	-29	4.22	47.7	0.24	2.83	3.85
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PURGING VALUES

01	5	300	14.51	6.60	3.90	-27	3.33	25.9	0.20	3.26	4.45
02	10	300	14.40	6.46	3.50	-19	2.21	7.7	0.18	2.23	4.94
03	15	300	14.39	6.38	3.42	-17	1.82	5.4	0.18	2.18	
04	20	300	14.44	6.33	3.36	-14	1.32	5.2	0.17	1.33	5.19
05	25	300	14.50	6.28	3.31	-14	0.98	4.6	0.17	2.12	
06	30	300	14.59	6.24	3.27	-14	0.78	4.3	0.17	2.09	5.35
07	35	300	14.67	6.20	3.19	-15	0.62	3.6	0.17	2.04	
08	40	300	14.70	6.21	3.17	-14	0.58	3.5	0.16	2.03	5.42
09	45	300	14.73	6.19	3.10	-15	0.60	2.9	0.16	1.98	
10	50	300	14.74	6.19	3.04	-14	0.49	3.1	0.16	1.94	5.55

3. SAMPLE COLLECTION DATA

Sampling Personnel:

J. Peake / G. Schmidt

Sampling Method(s) & Equip: Low-Flow DEC Bladder Pump

Sample I.D. (Name, Date, Time): GPE-MW-25 12/19/2012 1357

Sample Analytical Parameters/Method:

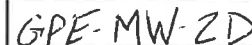
Sample Start Time: 1345 End Sample Time: 1357

PID/FID READING(s): 0.0

PID/FID Model & Ionization Potential Min. RAE 3000

ODOR/SHEEN: None/None

COMMENTS: None

**PERMIT NO.:****COMMENTS:**





GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPE-MW-3D

PERMIT NO.:

Project No.:		125180-1-1102		Client:		National Grid					
Project Name:		Greenpoint RI Phase 1		Project Location:		Greenpoint Energy Center, Brooklyn					
Weather Conditions:		Partly Cloudy 45°F		Sampling Date:		12/19/2012					
1. WATER LEVEL DATA (measured from top of inner well casing)											
a.	Depth to LNAPL:	(ft)	b.	Depth to Water:	5.45	(ft)					
c.	Depth to DNAPL:	(ft)	d.	Total Well Depth:	41.70	(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									
b.	Field Testing Equipment:	DEC Bladder Pump									
c.	Required Total Purge Volume (1f x 2c) (gals.):										
d.	Total Volume and Number of Well Volumes Removed:										
e.	Begin Purge Time:	1050	End Purge Time:	1140							
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)
PRE PURGE VALUES											
00	—	300	14.31	6.52	2.54	-96	2.54	159	0.13	1.63	5.45
PURGING VALUES											
01	5	300	14.38	6.52	2.56	-100	1.69	125	0.13	1.63	5.39
02	10	300	14.37	6.50	2.56	-105	1.49	97.5	0.13	1.64	
03	15	300	14.17	6.49	2.58	-108	1.45	72.1	0.13	1.66	
04	20	300	14.00	6.50	2.59	-106	1.85	44.5	0.13	1.66	5.39
05	25	300	13.99	6.49	2.60	-105	1.99	40.4	0.13	1.65	
06	30	300	13.93	6.49	2.58	-105	1.98	29.1	0.13	1.66	
07	35	300	13.90	6.49	2.59	-109	1.34	23.7	0.13	1.65	5.36
08	40	300	13.89	6.48	2.59	-112	1.04	18.9	0.13	1.66	
09	45	300	13.88	6.48	2.59	-115	0.73	19.8	0.13	1.66	
10	50	300	13.87	6.48	2.60	-117	0.60	17.6	0.13	1.67	5.45
3. SAMPLE COLLECTION DATA											
Sampling Method(s) & Equip:				low-Flow DEC Bladder Pump				Sampling Personnel: J. Peake / GC Schmidt			
Sample I.D. (Name, Date, Time):				GPE-MW-3D 12/19/2012 / 1155							
Sample Analytical Parameters/Method:											
Sample Start Time:				1140				End Sample Time: 1155			
PID/FID READING(s):				0.0				PID/FID Model & Ionization Potential Min: RAE 3000			
ODOR/SHEEN:				None/None							
COMMENTS:				None							



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

~~112~~ 2 GPEC-MW2

PERMIT NO.:

Project No.:		125180-1-1102		Client:		National Grid															
Project Name:		Greenpoint RI Phase 1		Project Location:		Greenpoint Energy Center, Brooklyn															
Weather Conditions:		Sunny, 40°		Sampling Date:		12/14/12															
1. WATER LEVEL DATA (measured from top of inner well casing) Before Probe																					
a.	Depth to LNAPL:	N/A	(ft)	b.	Depth to Water:	57.93	(ft)														
c.	Depth to DNAPL:	N/A	(ft)	d.	Total Well Depth:	68.00	(ft)														
e.	LNAPL Thickness:	(a-b) N/A	(ft)	f.	DNAPL Thickness:	(c-d) N/A	(ft)														
g.	Length of Water Column:		(ft)	(a-d)																	
h.	Well Volume:		(gal)																		
2. WELL PURGE DATA																					
a.	Purge Method:	EPA Low-flow																			
b.	Field Testing Equipment:	MP-50																			
c.	Required Total Purge Volume (1f x 2c) (gals.):																				
d.	Total Volume and Number of Well Volumes Removed:																				
e.	Begin Purge Time:	1305	End Purge Time:	1400																	
<table border="1"><thead><tr><th colspan="2">Conversion Factors</th></tr><tr><th colspan="2">(a x cf = b)</th></tr><tr><th>Well I.D.</th><th>Conv. Fact. (cf)</th></tr></thead><tbody><tr><td>1</td><td>0.041</td></tr><tr><td>2</td><td>0.163</td></tr><tr><td>4</td><td>0.653</td></tr><tr><td>6</td><td>1.470</td></tr></tbody></table>								Conversion Factors		(a x cf = b)		Well I.D.	Conv. Fact. (cf)	1	0.041	2	0.163	4	0.653	6	1.470
Conversion Factors																					
(a x cf = b)																					
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)										
PRE PURGE VALUES																					
		300 ml/m																			
PURGING VALUES																					
	5		14.07	6.67	1.06	174	3.52	0.0	—	—	57.95										
	10		14.10	6.71	1.06	200	3.30	0.0	—	—											
	15		14.20	6.72	1.06	201	3.15	0.0	—	—											
	20		14.28	6.73	1.05	211	3.07	0.0	—	—											
	25		14.33	6.74	1.05	220	2.92	0.0	—	—											
	30		14.38	6.75	1.06	223	2.85	0.0	—	—	57.95										
	35		14.41	6.75	1.06	225	3.07	0.0	—	—											
	40		14.43	6.77	1.06	228	2.82	0.0	—	—											
	45		14.46	6.75	1.06	227	2.73	0.0	—	—											
	50		14.43	6.76	1.05	230	2.69	0.0	—	—											
	55	✓	14.39	6.76	1.05	232	2.65	0.0	—	—	57.95										
3. SAMPLE COLLECTION DATA																					
Sampling Method(s) & Equip:						Sampling Personnel:															
EPA Low-flow MP-50 bladder pump						EC/DB															
Sample I.D. (Name, Date, Time):						GPEC-MW-2															
Sample Analytical Parameters/Method:																					
Sample Start Time:						End Sample Time:															
1420						1450															
PID/FID READING(s):						PID/FID Model & Ionization Potential															
110.9 ppm																					
ODOR/SHEEN: Slight Acetone-Like																					
COMMENTS: Sweet Ambient odor																					



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPFC-MW2S

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Fair, 30's Sampling Date: 12/19/12

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

- a. Depth to LNAPL: N/A (ft) b. Depth to Water: 6.60 (ft)
c. Depth to DNAPL: N/A (ft) d. Total Well Depth: (ft)
e. LNAPL Thickness: (a-b) N/A (ft) f. DNAPL Thickness: (c-d) N/A (ft)
g. Length of Water Column: (ft) (a-d)
h. Well Volume: (gal)

2. WELL PURGE DATA

- a. Purge Method: EPA Low flow
b. Field Testing Equipment:
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 0805 End Purge Time: 0935

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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PRE PURGE VALUES

PURGING VALUES

0805	1000	7.50	1.78	-350	3.19	350	-	-	-
5	11.81	7.56	1.70	-139	2.15	205	-	-	-
10	11.91	7.57	1.69	-139	1.86	165	-	-	-
15	12.01	7.59	1.67	-142	1.72	133	-	-	7.55
20	12.14	7.61	1.64	-145	1.49	115	-	-	-
25	13.83	7.63	1.55	-149	1.56	102	-	-	-
30	13.98	7.65	1.51	-156	1.00	90	-	-	-
35	14.03	7.66	1.49	-158	0.88	75.8	-	-	7.55
40	14.09	7.67	1.48	-162	0.83	73.2	-	-	-
45	14.09	7.68	1.46	-163	0.84	70.9	-	-	-
50	14.23	7.69	1.42	-162	0.82	62.1	-	-	-
55	14.23	7.68	1.44	-162	0.89	54.0	-	-	-
60	14.03	7.70	1.44	-161	1.01	58.8	-	-	-
65	14.30	7.71	1.43	-160	0.94	60.1	-	-	7.48
70	14.32	7.70	1.43	-159	0.97	61.8	-	-	-
75	NA								
80	NA								

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/OB

Sampling Method(s) & Equip: MP-50 bladder pump

Sample I.D. (Name, Date, Time):

Sample Analytical Parameters/Method:

Sample Start Time: 0940

End Sample Time: 0955

PID/FID READING(s): 0.8

PID/FID Model & Ionization Potential

ODOR/SHEEN: None

COMMENTS: Began purging on 12/18, but pump had flow issues + rain/thunder halted sampling.

GPEC MW 20

GFI



COLLECTION RECORD

PERMIT NO.:

Project No.: 125180-1-1102

Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions:

Sampling Date: 12/18/12

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

- | | |
|--|--|
| <p>a. Depth to LNAPL: <u>N/A</u> (ft)</p> <p>c. Depth to DNAPL: <u>N/A</u> (ft)</p> <p>e. LNAPL Thickness: (a-b) <u>N/A</u> (ft)</p> <p>g. Length of Water Column: <u> </u> (ft)</p> <p>h. Well Volume: <u> </u> (gal)</p> | <p>b. Depth to Water: <u>3.09 (mch pump)</u> (ft)</p> <p>d. Total Well Depth: <u> </u> (ft)</p> <p>f. DNAPL Thickness: (c-d) <u>N/A</u> (ft)</p> <p>(a-d)</p> |
|--|--|
-
- Conversion Factors

2. WELL PURGE DATA

- a. Purge Method: EPA Low-flow
- b. Field Testing Equipment: MP-50 / U-52
- c. Required Total Purge Volume (1f x 2c) (gals.): _____
- d. Total Volume and Number of Well Volumes Removed: _____
- e. Begin Purge Time: 1450 End Purge Time: 1545

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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PRE PURGE VALUES

		500 ml								
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PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/OIB

Sampling Method(s) & Equip:

Sample I.D. (Name, Date, Time):

Sample Analytical Parameters/Method:

Sample Start Time: 1600

End SampleTime: 1615

PID/FID READING(s): 5.6 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN: None (slight odor)

COMMENTS: Started downpouring during sampling

GPEC-MW-3WT



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

PERMIT NO.:

WIT-2
GPEC MW-

Project No.: 125180-1-1102 Client: National Grid
 Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
 Weather Conditions: cloudy windy Sampling Date: 12/21/12

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

a. Depth to LNAPL: (ft) b. Depth to Water: 3.01 (ft)
 c. Depth to DNAPL: (ft) d. Total Well Depth: 19 ft (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

(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: Low flow
 b. Field Testing Equipment: Horiba u-52
 c. Required Total Purge Volume (1f x 2c) (gals.):
 d. Total Volume and Number of Well Volumes Removed:
 e. Begin Purge Time: End Purge Time:

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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PRE PURGE VALUES

1	1030	500	7.24	6.36	0.999	142	10.64	378	0.05	-	3.17
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PURGING VALUES

2	1035	300	7.25	6.41	0.991	143	10.47	350	0.05	-	3.17
3	1040	300	7.16	6.49	1.02	134	10.37	271	0.05	-	3.28
4	1045	300	7.13	7.10	1.03	135	10.25	233	0.05	-	3.29
5	1050	300	7.14	7.25	1.04	134	10.17	200	0.05	-	3.28
6	1055	300	7.17	7.37	1.05	133	10.17	150	0.05	-	3.25
7	1100	300	7.16	7.36	1.05	133	10.16	135	0.05	-	3.38
8	1105	300	7.22	7.50	1.07	133	10.06	110	0.05	-	3.45
9	1110	300	7.21	7.52	1.07	132	9.89	104	0.05	-	3.44
10	1115	300	7.22	7.51	1.08	132	9.88	103	0.05	-	3.45
11	1120	300	7.21	7.52	1.08	133	9.89	103	0.05	-	3.42
12	1125	300	7.22	7.51	1.08	134	9.89	102	0.05	-	3.45
13	1130	300	7.21	7.51	1.09	133	9.89	102	0.05	-	3.44

3. SAMPLE COLLECTION DATA

Sampling Personnel:

HJS/AA

Sampling Method(s) & Equip: QED Sample pro bladder pump

Sample I.D. (Name, Date, Time): GPEC-MW-3WT 12/21/12 11:30

Sample Analytical Parameters/Method:

Sample Start Time: 11:30

End Sample Time:

PID/FID READING(s): 1.3ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: pump intake @ 14 ft



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW-35

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Sun & clouds w/ light W. winds SW Sampling Date: 12/19/12

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

- a. Depth to LNAPL: (ft) b. Depth to Water: 5.80' 5.30' (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: (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

(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: EPA Low Flow
b. Field Testing Equipment:
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 1205 End Purge Time:

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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PRE PURGE VALUES

0	1205	300	13.73	8.07	1.18	-120	6.92	67.4	0.06	—	5.51
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PURGING VALUES

1	1210	300	13.73	8.02	1.15	-125	2.43	46.2	0.06	—	5.51
2	1215	300	13.74	7.99	1.10	-128	5.73	54.0	0.06	—	5.48
3	1220	300	13.72	7.87	1.05	-137	0.93	62.0	0.06	—	5.47
4	1225	300	13.71	7.83	1.03	-140	0.81	29.9	0.06	—	5.47
5	1230	300	13.75	7.79	1.03	-143	0.76	18.8	0.06	—	5.45
6	1235	300	13.67	7.76	1.02	-146	0.60	10.5	0.05	—	5.05
7	1240	300	13.66	7.77	1.02	-147	0.60	7.3	0.05	—	5.06
8	1245	300	13.66	7.76	1.02	-147	0.60	7.3	0.05	—	5.05
9	1250	300	13.65	7.76	1.02	-148	0.61	7.2	0.05	—	5.06
10	1255	300	13.66	7.77	1.02	-148	0.61	7.1	0.05	—	5.05

DO reading
0.62

3. SAMPLE COLLECTION DATA

Sampling Personnel: 10/AA

Sampling Method(s) & Equip: RFD Sample Pro Bladder Pump

Sample I.D. (Name, Date, Time): GPEC-MW-35, 12/19/12, 1255

Sample Analytical Parameters/Method:

Sample Start Time: 1255

End Sample Time: 1310

PID/FID READING(s): 0.1

PID/FID Model & Ionization Potential

ODOR/SHEEN: Dark, cloudy w/ no odor detected

COMMENTS:



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW-3D

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Sunny clouds - 48°F Wind SW Sampling Date: 12/13/12

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

- a. Depth to LNAPL: _____ (ft) b. Depth to Water: 840 (ft)
c. Depth to DNAPL: _____ (ft) d. Total Well Depth: _____ (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

(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: EPA low flow
b. Field Testing Equipment: _____
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 0940 End Purge Time: 1040

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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PRE PURGE VALUES

3.49

0	0940	250	12.30	6.29	3.08	874	5.35	1000	0.18	-	5.15
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PURGING VALUES

1	0945	250	13.25	7.14	4.66	-81	1.79	607	0.25	-	5.17
2	0950	250	13.24	7.31	4.67	-94	1.28	435	0.25	-	5.17
3	0955	250	13.24	7.41	4.59	-109	1.13	245	0.24	-	5.05
4	1000	250	13.19	7.47	4.49	-124	1.09	131	0.24	-	5.09
5	1005	250	13.20	7.50	4.44	-137	1.09	82.1	0.23	-	5.01
6	1010	250	13.18	7.52	4.44	-148	1.04	60.1	0.23	-	5.00
7	1015	250	13.15	7.52	4.44	-162	0.95	40.9	0.23	-	5.04
8	1020	250	13.23	7.51	4.45	-172	0.88	32.5	0.24	-	5.01
9	1025	250	13.23	7.63	4.45	-188	1.02	25.7	0.24	-	5.02
10	1030	250	13.24	7.62	4.45	-189	1.03	25.6	0.24	-	5.01
11	1035	250	13.23	7.64	4.46	-188	1.03	24.1	0.24	-	5.01
12	1040	250	13.24	7.64	4.45	-189	1.04	23.2	0.24	-	5.01

3. SAMPLE COLLECTION DATA

Sampling Personnel: SO/AASampling Method(s) & Equip: QED Bladder Sample Pro Bladder PumpSample I.D. (Name, Date, Time): GPEC-MW-3D 12/19/12 1040

Sample Analytical Parameters/Method: _____

Sample Start Time: 1040End Sample Time: 1050PID/FID READING(s): 0.0

PID/FID Model & Ionization Potential

ODOR/SHEEN: no odors detectedCOMMENTS: dark & cloudy

Low-Flow Groundwater Sampling Form

Project number and name: 125140-2-1202 Sampling personnel: DB Sample date: 1/7/16 Well ID: GPEC-MW-101WT

Well location description: MW-101WT

Sampling Information

Initial depth to water: 11.21 Time: 1310
 Screen intake depth: ~13'
 Pump type and ID: MP-50 Bladder
 Stabilized flow rate: ~500 mL/min
 Stabilized flow rate in flow rate with no further drawdown

Samples Collected

VOCs 8260
 SVOCs 8270
 VPI
 BPH
 Metals
 PCBs
 Other

Field values at time of sample collection:

Time: 1405 Depth to water: _____
 Sp. Cond. _____ mS/cm
 DO _____ mg/L
 ORP _____ mV
 pH _____ s.u.
 Temp. _____ °C
 Turb. _____ NTU

Well Construction
 Well diameter: 2"
 Well measurement point: PVC
 Speedbox condition: OK
 Well screen interval: 8-18
 Well depth: 19.48

Cumulative Time (min.)	Volume (L)	Water Depth (ft)	Temp. (°C)	Sp. Cond. (µm)	DO (%)	pH	ORP (mV)	Turb. (NTU)
1325	0	11.25	16.77	5.71	0.55	6.96	196	12.2
1330	2.5	11.25	16.84	5.12	0.24	6.96	200	9.4
1335	5	11.22	17.07	5.10	0.00	6.96	224	4.5
1340	7.5	11.25	17.15	5.00	0.00	6.96	235	0.7
1345	10	11.25	17.16	4.88	0.00	6.96	242	0.6
1350	12.5	11.25	17.19	4.79	0.00	6.96	252	0.0
1355	15	11.25	17.16	4.69	0.00	6.96	252	0.0
1400	17.5	11.25	17.14	4.67	0.00	6.96	251	0.0

Sample Information:

Sample ID: GPEC-MW-101WT
 Sample Time: 1405
 Color: clear
 Turbidity: None
 Field Filtered ☒ YES ☐ NO Analyses: PCB's
 Filter type: 7 micron
 Odor/Sneak/NAPL: None
 Duplicate Collected YES ☒ NO ☐
 If yes, duplicate ID: _____
 Purge water disposal? to ground ☐ drummed ☐ other: _____

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

Stabilization Criteria:

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

Guidance:

- 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 VPI and VOC samples, if stabilization flow rate is less than 200 mL/min, contact PM.

Notes:



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:
PERMIT NO.:

GPEL-MW-35

Project No.: 125180-1-1102		Client: National Grid											
Project Name: Greenpoint RI Phase 1		Project Location: Greenpoint Energy Center, Brooklyn											
Weather Conditions: Sun & clouds ~ 45° of winds SW		Sampling Date: 12/19/12											
1. WATER LEVEL DATA (measured from top of inner well casing)													
a. Depth to LNAPL: _____ (ft)	b. Depth to Water: 5.80' 5.30' (ft)												
c. Depth to DNAPL: _____ (ft)	d. Total Well Depth: _____ (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: EPA Low Flow													
b. Field Testing Equipment: _____													
c. Required Total Purge Volume (1f x 2c) (gals.): _____													
d. Total Volume and Number of Well Volumes Removed: _____													
e. Begin Purge Time: 1205	End Purge Time: _____												
<table border="1"><thead><tr><th colspan="2">Conversion Factors (a x cf = h)</th></tr><tr><th>Well I.D.</th><th>Conv. Fact. (cf)</th></tr></thead><tbody><tr><td>1</td><td>0.041</td></tr><tr><td>2</td><td>0.163</td></tr><tr><td>4</td><td>0.653</td></tr><tr><td>6</td><td>1.470</td></tr></tbody></table>		Conversion Factors (a x cf = h)		Well I.D.	Conv. Fact. (cf)	1	0.041	2	0.163	4	0.653	6	1.470
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)		
PRE PURGE VALUES													
0	1205	300	13.73	8.07	1.18	-120	6.92	67.4	0.06	—	5.51		
PURGING VALUES													
1	1210	300	13.73	8.02	1.15	-125	2.43	46.2	0.06	—	5.51		
2	1215	300	13.74	7.99	1.10	-128	5.73	54.0	0.06	—	5.48		
3	1220	300	13.72	7.87	1.05	-137	0.93	62.0	0.06	—	5.47		
4	1225	300	13.71	7.83	1.03	-140	0.81	29.9	0.06	—	5.47		
5	1230	300	13.75	7.79	1.03	-143	0.76	18.8	0.06	—	5.45		
6	1235	300	13.67	7.76	1.02	-146	0.60	10.5	0.05	—	5.05		
7	1240	300	13.66	7.77	1.02	-147	0.60	7.3	0.05	—	5.06		
8	1245	300	13.66	7.76	1.02	-147	0.60	7.3	0.05	—	5.05		
9	1250	300	13.65	7.76	1.02	-148	0.61	7.2	0.05	—	5.06		
10	1255	300	13.66	7.77	1.02	-148	0.61	7.1	0.05	—	5.05		
3. SAMPLE COLLECTION DATA													
Sampling Method(s) & Equip: RFD Sample Pro Bladder Pump						Sampling Personnel: 10/AA							
Sample I.D. (Name, Date, Time): GPEL-MW-35, 12/19/12, 1255													
Sample Analytical Parameters/Method: _____													
Sample Start Time: 1255						End Sample Time: 1310							
PID/FID READING(s): 0.1						PID/FID Model & Ionization Potential							
ODOR/SHEEN: Dark, cloudy, no odor detected													
COMMENTS:													



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW-3D

PERMIT NO.:

Project No.:		125180-1-1102		Client:		National Grid															
Project Name: Greenpoint RI Phase 1				Project Location: Greenpoint Energy Center, Brooklyn																	
Weather Conditions: <u>Sunny clouds - 48°F Wind SW</u>				Sampling Date: <u>12/19/12</u>																	
1. WATER LEVEL DATA (measured from top of inner well casing)																					
a. Depth to LNAPL:		(ft)		b. Depth to Water:		840 (ft)															
c. Depth to DNAPL:		(ft)		d. Total Well Depth:		(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:		EPA low flow																			
b. Field Testing Equipment:																					
c. Required Total Purge Volume (1f x 2c) (gals.):																					
d. Total Volume and Number of Well Volumes Removed:																					
e. Begin Purge Time: 0940		End Purge Time: 1040																			
<table border="1"><thead><tr><th colspan="2">Conversion Factors</th></tr><tr><th colspan="2">(a x cf = h)</th></tr><tr><th>Well I.D.</th><th>Conv. Fact. (cf)</th></tr></thead><tbody><tr><td>1</td><td>0.041</td></tr><tr><td>2</td><td>0.163</td></tr><tr><td>4</td><td>0.653</td></tr><tr><td>6</td><td>1.470</td></tr></tbody></table>								Conversion Factors		(a x cf = h)		Well I.D.	Conv. Fact. (cf)	1	0.041	2	0.163	4	0.653	6	1.470
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)										
PRE PURGE VALUES																					
0	0940	250	12.30	6.29	3.08	874	5.35	1000	0.18	-	5.15										
PURGING VALUES																					
1	0945	250	13.25	7.14	4.66	-81	1.79	607	0.25	-	5.17										
2	0950	250	13.24	7.31	4.67	-94	1.28	435	0.25	-	5.17										
3	0955	250	13.24	7.41	4.59	-109	1.13	245	0.24	-	5.05										
4	1000	250	13.19	7.47	4.49	-124	1.09	131	0.24	-	5.09										
5	1005	250	13.20	7.50	4.44	-137	1.09	82.1	0.23	-	5.01										
6	1010	250	13.18	7.52	4.44	-148	1.04	60.1	0.23	-	5.00										
7	1015	250	13.15	7.52	4.44	-162	0.95	40.9	0.23	-	5.04										
8	1020	250	13.23	7.51	4.45	-172	0.88	32.5	0.24	-	5.01										
9	1025	250	13.23	7.63	4.45	-188	1.02	25.7	0.24	-	5.02										
10	1030	250	13.24	7.62	4.45	-189	1.03	25.6	0.24	-	5.01										
11	1035	250	13.23	7.64	4.46	-188	1.03	24.1	0.24	-	5.01										
12	1040	250	13.24	7.64	4.45	-189	1.04	23.2	0.24	-	5.01										
3. SAMPLE COLLECTION DATA																					
Sampling Method(s) & Equip: QED Bladder				Sampling Personnel: SO/AA																	
Sample I.D. (Name, Date, Time): GPEC-MW-3D				12/19/12 1040																	
Sample Analytical Parameters/Method:																					
Sample Start Time: 1040				End Sample Time: 1050																	
PID/FID READING(s): 0.0				PID/FID Model & Ionization Potential																	
ODOR/SHEEN: no odors detected																					
COMMENTS: dark & cloudy																					

GPEC-MW-4

Client: National Grid

Project Location: Greenpoint Energy Center, Brooklyn

Sampling Date: 12/18/2012

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

a. Depth to LNAPL: _____ (ft) c. Depth to DNAPL: _____ (ft) e. LNAPL Thickness: (a-b) _____ (ft) g. Length of Water Column: _____ (ft) h. Well Volume: _____ (gal)	b. Depth to Water: <u>6.73</u> (ft) d. Total Well Depth: <u>68.51</u> (ft) f. DNAPL Thickness: (c-d) _____ (ft) (a-d)
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Conversion Factors

2. WELL PURGE DATA

a. Purge Method: Low-Flow

b. Field Testing Equipment: REC Bladder Pump

c. Required Total Purge Volume (1f x 2c) (gals.): _____

d. Total Volume and Number of Well Volumes Removed: _____

e. Begin Purge Time: 1405 End Purge Time: 1455

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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PRE PURGE VALUES

00	-	350	15.67	5.54	5.54	213	4.30	5.5	0.30	3.50	6.73
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PURGING VALUES

01	5	350	15.33	6.93	5.53	163	1.12	3.8	0.30	3.48	
02	10	350	15.18	7.46	5.42	146	0.64	6.0	0.29	3.46	
03	15	350	15.13	7.70	5.38	136	0.53	7.6	0.29	3.39	6.71
04	20	350	15.16	7.84	5.28	127	0.45	12.6	0.28	3.33	
05	25	350	15.18	7.91	5.20	121	0.40	15.0	0.28	3.27	
06	30	350	15.20	7.96	5.10	115	0.37	18.4	0.27	3.20	
07	35	350	15.19	8.01	4.90	108	0.34	22.9	0.26	3.13	7.83
08	40	350	15.16	8.09	4.64	99	0.31	28.7	0.25	2.97	
09	45	350	15.18	8.11	4.61	96	0.30	27.9	0.24	2.94	
10	50	350	15.18	8.10	4.59	95	0.29	26.8	0.24	2.92	7.96

3. SAMPLE COLLECTION DATA

Sampling Personnel: J. Peake / GC Schmidt

Sampling Method(s) & Equip: Low-Flow JEC Bladder Pump

Sample I.D. (Name, Date, Time): GPEC-MW-4 12/18/2012 1505

Sample Analytical Parameters/Method:

Sample Start Time: 1455 End Sample Time: 1505

PID/FID READING(s): No Reading (Missing I-Phys) PID/FID Model & Ionization Potential Mini RAE 3000

ODOR/SHEEN: None/None

COMMENTS: No J-Flag

GIPEL-MW-4D

Project No.:	125180-1-1102	Client:	National Grid
Project Name:	Greenpoint RI Phase 1	Project Location:	Greenpoint Energy Center, Brooklyn
Weather Conditions:	Partly Cloudy 40°F	Sampling Date:	12/19/2012

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

- | | |
|---|---|
| <p>a. Depth to LNAPL: _____ (ft)</p> <p>c. Depth to DNAPL: _____ (ft)</p> <p>e. LNAPL Thickness: (a-b) _____ (ft)</p> <p>g. Length of Water Column: _____ (ft)</p> <p>h. Well Volume: _____ (gal)</p> | <p>b. Depth to Water: <u>7.15</u> (ft)</p> <p>d. Total Well Depth: <u>43.73</u> (ft)</p> <p>f. DNAPL Thickness: (c-d) _____ (ft)</p> <p>(a-d)</p> |
|---|---|
-
- Conversion Factors

2. WELL PURGE DATA

- a. Purge Method: Low-Flow
- b. Field Testing Equipment: REC Bladder Pump
- c. Required Total Purge Volume (1f x 2c) (gals.): _____
- d. Total Volume and Number of Well Volumes Removed: _____
- e. Begin Purge Time: 0750 End Purge Time: 0840

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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PRE PURGE VALUES

00	-	350	12.62	6.30	2.50	-56	1.96	541	0.13	1.59	7.15
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PURGING VALUES

01	5	350	13.98	6.55	2.43	-105	1.28	149	0.12	1.55	
02	10	350	14.05	6.60	2.42	-118	0.78	53.1	0.12	1.55	
03	15	350	14.12	6.62	2.44	-123	0.52	32.1	0.13	1.57	12.26
04	20	350	14.14	6.63	2.52	-129	0.53	20.1	0.13	1.61	
05	25	350	14.18	6.64	2.47	-132	0.53	15.1	0.13	1.59	
06	30	350	14.15	6.64	2.49	-134	0.54	14.6	0.13	1.59	16.18
07	35	350	14.20	6.63	2.49	-138	0.50	11.8	0.13	1.59	
08	40	350	14.15	6.63	2.50	-140	0.50	10.1	0.13	1.60	
09	45	350	14.11	6.64	2.49	-146	0.50	10.8	0.13	1.59	18.84
10	50	350	14.11	6.64	2.51	-149	0.52	9.8	0.13	1.61	19.46

3. SAMPLE COLLECTION DATA

Sampling Personnel: J. Peake / G.C. Schmidt

Sampling Method(s) & Equip: Low-Flow QEL Bladder Pump

Sample I.D. (Name, Date, Time): GPEC - MW - 4 D 12/19/2012 0852

Sample Analytical Parameters/Method:

Sample Start Time: 0840 End Sample Time: 0852

PID/FID READING(s) : 0.02

PID/FID Model & Ionization Potential M.I. RAE 3000

ODOR/SHEEN:

COMMENTS: Grayish - Black color - Moderate organic-like odor.



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW-55

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Cloudy, No Sun 45°F Sampling Date: 12/20/2012

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

a. Depth to LNAPL: (ft) b. Depth to Water: 7.19 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: 42.88 (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
(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: Low-Flow
b. Field Testing Equipment: QEC Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 1250 End Purge Time: 1340

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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PRE PURGE VALUES

00	—	350	12.97	6.31	5.62	-89	2.15	795	0.30	3.55	7.19
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PURGING VALUES

01	5	350	13.44	6.40	5.64	-107	1.96	656	0.30	3.54	7.12
02	10	350	13.66	6.57	5.32	-113	2.72	271	0.28	3.34	
03	15	350	13.34	6.58	5.05	-113	1.20	156	0.27	3.17	
04	20	350	13.73	6.59	4.83	-112	1.54	131	0.26	3.08	7.07
05	25	350	13.78	6.62	4.54	-108	1.64	68.0	0.24	2.89	
06	30	350	13.69	6.65	4.12	-109	1.23	42.1	0.22	2.62	
07	35	350	13.73	6.65	3.99	-109	1.22	29.8	0.21	2.55	7.21
08	40	350	13.73	6.66	3.80	-110	1.23	21.4	0.20	2.42	
09	45	350	13.80	6.67	3.64	-109	1.10	16.7	0.19	2.33	
10	50	350	13.75	6.68	3.49	-109	1.06	13.2	0.18	2.22	7.19

3. SAMPLE COLLECTION DATA

Sampling Personnel:

J. Peake / GEC Schmidt

Sampling Method(s) & Equip: Low-Flow QEC Bladder Pump

Sample I.D. (Name, Date, Time): GPEC-MW-55, 12/20/2012, 1350

Sample Analytical Parameters/Method:

Sample Start Time:

End Sample Time: 1350

PID/FID READING(s): 1.4

PID/FID Model & Ionization Potential Min RAE 3000

ODOR/SHEEN: Moderate Organic-like odor, slight gray color, no sheen

COMMENTS:



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW-5D

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Cloudy 45°F Sampling Date: 12/20/2012

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

- a. Depth to LNAPL: _____ (ft) b. Depth to Water: 7.68 (ft)
c. Depth to DNAPL: _____ (ft) d. Total Well Depth: 7.6 83.18 (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
(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: Low-Flow
b. Field Testing Equipment: QEC Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 1400 End Purge Time: 1450

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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PRE PURGE VALUES

00	—	350	13.31	7.41	1.80	-115	6.02	6.7	0.09	1.09	7.68
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PURGING VALUES

01	5	350	13.89	7.02	1.48	-114	5.23	4.5	0.07	.938	7.70
02	10	350	14.03	6.93	1.46	-113	5.14	3.0	0.07	.938	
03	15	350	13.98	6.78	1.45	-114	4.94	3.1	0.07	.936	
04	20	350	13.90	6.71	1.43	-117	2.69	2.1	0.07	.912	7.75
05	25	350	13.91	6.70	1.39	-119	3.00	4.7	0.07	.894	
06	30	350	13.98	6.68	1.39	-120	2.83	8.1	0.07	.894	
07	35	350	13.86	6.66	1.38	-123	2.71	10.1	0.07	.888	7.75
08	40	350	13.90	6.67	1.38	-123	2.54	7.1	0.07	.884	
09	45	350	13.87	6.66	1.39	-125	2.44	7.5	0.07	.885	
10	50	350	13.94	6.68	1.38	-126	2.31	4.9	0.07	.886	7.75

3. SAMPLE COLLECTION DATA

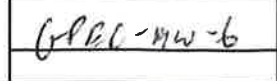
Sampling Personnel:

J. Recke / G.C. Schmidt

Sampling Method(s) & Equip: Low-Flow QEC Bladder PumpSample I.D. (Name, Date, Time): GPEC-MW-5D, 12/20/2012, 1505

Sample Analytical Parameters/Method: _____

Sample Start Time: 1450End Sample Time: 1505PID/FID READING(s): 0.2PID/FID Model & Ionization Potential Mini RAE 3000ODOR/SHEEN: Slight organic-like odor. Light gray color. No sheenCOMMENTS: None



Form #15



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MU-70

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: 40's + rainy + windy Sampling Date: 12/21/12

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

a. Depth to LNAPL: — (ft) b. Depth to Water: 2.19 (ft)
c. Depth to DNAPL: — (ft) d. Total Well Depth: — (ft)
e. LNAPL Thickness: (a-b) — (ft) f. DNAPL Thickness: (c-d) — (ft)
g. Length of Water Column: 2.19 (ft) (a-d)
h. Well Volume: — (gal)

2. WELL PURGE DATA

a. Purge Method: EPA Low Flow
b. Field Testing Equipment: Horiba U52 + bladder
c. Required Total Purge Volume (1f x 2c) (gals.): —
d. Total Volume and Number of Well Volumes Removed: —
e. Begin Purge Time: 0925 End Purge Time: —

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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PRE PURGE VALUES

3	—	300									
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PURGING VALUES

—			12.91	7.81	0.006	87	15.29	113	—	—	—
5			13.07	7.73	0.005	92	10.28	166	—	—	—
10			13.44	7.63	0.005	95	7.66	182	—	—	—
15			13.72	7.71	0.004	90	7.05	184	—	—	—
20			13.81	7.65	0.004	87	6.83	186	—	—	—
25			13.96	7.66	0.005	83	6.60	189	—	—	—
30			14.02	7.63	0.005	83	6.32	191	—	—	—
35			14.20	7.51	0.005	84	6.30	167	—	—	—
40			14.37	7.56	0.005	-10	6.25	185	—	—	—
45			14.50	7.54	0.005	-35	6.04	195	—	—	—
50			14.79	8.18	0.005	-100	5.92	169	—	—	—
55			15.05	8.04	0.007	-140	5.80	156	—	—	—
60			15.25	7.97	0.006	-132	5.58	151	—	—	—
65			15.36	7.95	0.008	-131	5.40	139	—	—	—
70			15.41	8.38	0.006	-171	5.13	156	—	—	—
75			15.39	8.36	0.006	-165	5.13	156	—	—	—
80			15.33	8.29	0.007	-153	4.67	157	—	—	—

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/DB

Sampling Method(s) & Equip: Low flow / U-52 Horiba / per pump

Sample I.D. (Name, Date, Time):

Sample Analytical Parameters/Method:

Sample Start Time: 1145

End Sample Time:

PID/FID READING(s): 0.1 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN: None

COMMENTS: well was buried + inundated w/ rain water. used portland +



Department of Health

PERMIT NO.:

GPECXX122112



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW-8

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Sunny 45°F Sampling Date: 12/13/12

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

a. Depth to LNAPL: (ft) b. Depth to Water: 6.81 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: 62.47 (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

(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: low-flow
b. Field Testing Equipment: GEC Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 1450 End Purge Time: 1540

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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PRE PURGE VALUES

00	0	350	14.61	6.74	1.28	88	10.43	57.6	0.07	.838	6.81
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PURGING VALUES

01	5	350	14.69	6.90	1.31	100	6.58	68.7	0.07	.839	6.88
02	5	350	14.78	6.92	1.27	82	2.67	7.7	0.06	.809	
03	5	350	14.72	6.95	1.23	45	1.17	2.2	0.06	.787	
04	5	350	14.75	6.95	1.22	21	0.84	1.7	0.06	.778	6.86
05	5	350	14.78	6.95	1.22	13	0.74	1.5	0.06	.778	
06	5	350	14.72	6.95	1.21	9	0.70	1.5	0.06	.774	
07	5	350	14.71	6.96	1.20	4	0.63	1.2	0.06	.769	6.89
08	5	350	14.76	6.96	1.19	-1	0.59	1.1	0.06	.764	
09	5	350	14.70	6.97	1.19	-3	0.58	0.9	0.06	.760	
10	5	350	14.68	6.97	1.19	-6	0.56	0.9	0.06	.762	6.91

3. SAMPLE COLLECTION DATA

Sampling Personnel:

J. Peake / GEC Schmidt

Sampling Method(s) & Equip: low-flow GEC Bladder Pump

Sample I.D. (Name, Date, Time): GPEC-MW-8, 12/13/12

Sample Analytical Parameters/Method:

Sample Start Time: 1540

End Sample Time: 1352

PID/FID READING(s): 0.2

PID/FID Model & Ionization Potential MiniRAE 3000

ODOR/SHEEN:

COMMENTS:





GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

CTPEC MW-11

PERMIT NO.:

Project No.: 125180-1-1102

Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions:

Sampling Date: 2/17/12

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

- a. Depth to LNAPL: _____ (ft) b. Depth to Water: 11.60 (ft)
c. Depth to DNAPL: _____ (ft) d. Total Well Depth: _____ (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
b. Field Testing Equipment: Horiba U-50
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: _____ End Purge Time: _____

Conversion Factors

(a x cf = b)

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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PRE PURGE VALUES

PURGING VALUES

1	1140	300	13.90	6.92	2.26	-92	10.95	576	0.11	-	11.79
2	1145	300	14.51	6.85	2.24	-107	8.21	351	0.11	-	11.73
3	1150	300	14.60	6.91	2.68	-114	1.26	184	0.11	-	11.77
4	1155	300	14.63	6.91	2.07	-116	0.97	60	0.10	-	11.77
5	1200	300	14.69	6.91	2.05	-115	0.97	59	0.10	-	11.76
6	1205	300	14.67	6.91	2.05	-116	0.98	55.2	0.10	-	11.73
7	1210	300	14.67	6.91	2.05	-116	0.97	55.1	0.10	-	11.75
8	1215	300	14.69	6.95	2.07	-116	1.53	36.3	0.11	-	11.75
9	1220	300	14.72	6.93	2.07	-117	0.85	29.7	0.10	-	11.75
10	1225	300	14.74	6.93	2.07	-117	0.83	12.2	0.10	-	11.76
11	1230	300	14.75	6.94	2.07	-118	0.83	12.9	0.10	-	11.77
12	1235	300	14.75	6.94	2.07	-118	0.83	12.7	0.10	-	11.76
13	1240	300	14.76	6.95	2.07	-119	0.84	12.6	0.10	-	11.75
14	1245	300	14.76	6.95	2.07	-119	0.83	12.6	0.10	-	11.76

3. SAMPLE COLLECTION DATA

Sampling Personnel: _____

Sampling Method(s) & Equip: _____

Sample I.D. (Name, Date, Time): _____

Sample Analytical Parameters/Method: _____

Sample Start Time: _____

End Sample Time: _____

PID/FID READING(s): 0.0ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: pump intake @ 45 ft b TOL



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC MW-11D

PERMIT NO.:

Project No.: 125180-1-1102

Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions:

Sampling Date: 12/17/12

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

- a. Depth to LNAPL: _____ (ft) b. Depth to Water: 11.47 (ft)
c. Depth to DNAPL: _____ (ft) d. Total Well Depth: _____ (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

(a x cf = h)

Well ID.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: Low Flow
b. Field Testing Equipment: Horiba U-52
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 09:50 End Purge Time: _____

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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PRE PURGE VALUES

1	0955	330	13.15	6.62	4.92	-87	3.68	550	0.26	3.15	11.50
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PURGING VALUES

2	1000	330	14.38	6.78	3.70	-83	1.54	66.2	0.19	—	11.65
3	1005	330	14.46	6.79	3.60	-90	1.16	10.2	0.19	—	11.56
4	1010	330	14.46	6.82	3.65	-90	1.02	13.3	0.19	—	11.57
5	1015	330	14.48	6.80	3.63	-90	1.08	13.9	0.19	—	11.57
6	1020	330	14.48	6.81	3.62	-90	1.05	12.6	0.19	—	11.57
7	1025	330	14.45	6.81	3.62	-89	1.06	10.1	0.19	—	11.58
8	1030	330	14.46	6.82	3.62	-90	1.08	9.4	0.19	—	11.56
9	1035	330	14.45	6.81	3.62	-89	0.99	8.4	0.19	—	11.57
10	1040	330	14.50	6.81	3.61	-86	0.92	8.0	0.19	—	11.57
11	1045	330	14.52	6.80	3.61	-85	0.91	7.3	0.19	—	11.57
12	1050	330	14.52	6.81	3.62	-85	0.89	7.3	0.19	—	11.57
17	1055	330	14.51	6.83	3.62	-85	0.89	7.1	0.19	—	11.57

3. SAMPLE COLLECTION DATA

Sampling Personnel: MJS/AA

Sampling Method(s) & Equip: Low Flow QED Sample Pro Reflon Blade

Sample I.D. (Name, Date, Time): GPEC-MW-11D 12/17/12 1055

Sample Analytical Parameters/Method: _____

Sample Start Time: _____

End Sample Time: _____

PID/FID READING(s): 1.3 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: pump intake @ 85 ft b TOC











The Center for Urban and Regional Consultants

WELL NO.:
PERMIT NO.:

GPCC MW 2175

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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COMMENTS: well pumped dry previously, sample well

GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW-217.I

PERMIT NO.:

Project No.:	125180-1-1102
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Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn.

Weather Conditions: Partly Cloudy 40°F

Sampling Date: 12/20/2012

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

a. Depth to LNAPL: (ft) b. Depth to Water: 19.57 (ft)

c. Depth to DNAPL: _____ (ft) d. Total Well Depth: 40.0 (ft)

e. **LNAPL Thickness:** (a-b) (ft) f. **DNAPL Thickness:** (c-d) (ft)

g. **Length of Water Column:** _____ (ft) (a-d)

2. WELL PURGE DATA

a. Purge Method: Low-Flow

b. **Field Testing Equipment:** QEC Bladder Pump

c. Required Total Purge Volume (1f x 2c) (gals.):

d. Total Volume and Number of Well Volumes Removed:

e. **Begin Purge Time:** 0855 **End Purge Time:** 0945

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. (ns/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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PRE PURGE VALUES

00	-	350	13.35	6.88	0.828	-84	3.55	744	0.04	.538	19.57
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PURGING VALUES

01	5	350	14.56	6.84	0.937	-77	2.50	589	0.05	6.00	19.59
02	10	350	14.30	6.91	0.914	-74	1.56	207	0.04	6.585	
03	15	350	14.57	6.92	0.926	-78	0.82	147	0.05	0.595	19.59
04	20	350	14.57	6.91	0.948	-85	0.83	51.6	0.05	0.607	
05	25	350	14.57	6.91	0.952	-85	0.61	32.1	0.05	0.610	
06	30	350	14.58	6.90	0.952	-87	0.60	20.4	0.05	0.610	19.58
07	35	350	14.58	6.89	0.953	-86	0.55	13.3	0.05	0.611	
08	40	350	14.68	6.91	0.954	-87	0.55	8.6	0.05	0.610	
09	45	350	14.66	6.89	0.954	-88	0.60	6.7	0.05	0.611	19.58
10	50	350	14.54	6.92	0.952	-90	0.56	5.3	0.05	0.611	

3. SAMPLE COLLECTION DATA

Sampling Personnel: J. Rake / GC Schmidt

Sampling Method(s) & Equip: low-flow OEC Bladder Pump

Sample I.D. (Name, Date, Time): GAPEL-MW-217I, 12/20/2012, 0955

Sample Analytical Parameters/Method:

Sample Start Time: 0945

End SampleTime: 0953

PID/FID READING(s) : 15

PID/FID Model & Ionization Potential *Mini RAE 3000*

ODOR/SHEEN: None/None

COMMENTS: None



Form #15



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC MW218I

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Clear 35°F Sampling Date: 12/14/2012

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

- a. Depth to LNAPL: (ft) b. Depth to Water: 51.80 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: 85.0 (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

(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: Low-Flow
b. Field Testing Equipment: QEC Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 0820 End Purge Time: 0915

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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PRE PURGE VALUES

00	-	350	9.78	7.31	664	88	4.62	28.6	0.04	511	51.80
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PURGING VALUES

01	5	350	12.87	6.72	1.42	-25	10.45	58.1	0.07	.923	
02	5	350	13.28	6.64	1.46	-24	8.78	52.5	0.07	.923	51.81
03	5	350	13.44	6.57	1.42	-17	7.11	22.2	0.07	.908	
04	5	350	13.51	6.55	1.41	-12	6.29	11.9	0.07	.899	
05	5	350	13.51	6.53	1.39	-9	5.56	7.4	0.07	.890	51.79
06	5	350	13.42	6.52	1.38	-8	5.09	5.2	0.07	.886	
07	5	350	13.56	6.51	1.38	-7	4.55	4.3	0.07	.886	
08	5	350	13.63	6.51	1.39	-6	4.09	3.6	0.07	.885	51.79
09	5	350	13.60	6.51	1.39	-6	3.75	3.4	0.07	.887	
10	5	350	13.58	6.51	1.39	-6	3.37	2.8	0.07	.889	51.82

3. SAMPLE COLLECTION DATA

Sampling Personnel:

J. Beake / G.C. Schmidt

Sampling Method(s) & Equip: Low-Flow QEC Bladder Pump

Sample I.D. (Name, Date, Time): GPEC MW218I 12/14/2012

Sample Analytical Parameters/Method:

Sample Start Time: 0915

End Sample Time: 0935

PID/FID READING(s): 0.4

PID/FID Model & Ionization Potential Mni RAE 3000

ODOR/SHEEN:

COMMENTS:







GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW219I

PERMIT NO.:

Project No.: 125180-1-1102

Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions: overcast, 40°

Sampling Date: 12/12/12

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

- a. Depth to LNAPL: N/A (ft) b. Depth to Water: 40.42 (ft) ^(before purge)
- c. Depth to DNAPL: N/A (ft) d. Total Well Depth: 73.02 (ft)
- e. LNAPL Thickness: (a-b) N/A (ft) f. DNAPL Thickness: (c-d) N/A (ft)
- g. Length of Water Column: _____ (ft) (a-d)
- h. Well Volume: _____ (gal)

Conversion Factors

(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: EPA low-flow
- b. Field Testing Equipment: _____
- c. Required Total Purge Volume (1f x 2c) (gals.): _____
- d. Total Volume and Number of Well Volumes Removed: _____
- e. Begin Purge Time: 1405 End Purge Time: _____

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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PRE PURGE VALUES

		<u>300 mL/min</u>									<u>40.42</u>
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PURGING VALUES

1405	—		11.77	6.37	0.678	18	4.01	50.2	—	—	—	40.42
	5		12.88	6.77	0.813	11	5.26	46.4	—	—	—	
	10		13.26	6.83	0.810	17	5.67	54.0	—	—		
	15		13.29	6.83	0.807	20	6.18	0.0	—	—		
	20		13.25	6.83	0.804	21	6.70	0.0	—	—	40.35	
	25		13.29	6.82	0.802	21	6.54	0.0				
	30		13.31	6.80	0.799	22	6.82	0.0				
	35		13.42	6.77	0.796	12	6.05	0.0				
	40		13.36	6.76	0.800	14	5.32	0.0				
	45		13.44	6.76	0.802	9	4.40	0.0				
	50		13.39	6.75	0.800	8	4.46	0.0				
	55		13.41	6.76	0.801	-3	3.94	0.0				
	60		13.46	6.76	0.807	-6	1.33	0.0				
	65		13.48	6.77	0.807	-9	1.04	0.0				
	70		13.47	6.77	0.806	-6	1.05	0.0				
	75		13.50	6.77	0.804	-10	1.01	0.0				

3. SAMPLE COLLECTION DATA

Sampling Personnel: DB/ECSampling Method(s) & Equip: MP-50 bladder

Sample I.D. (Name, Date, Time): _____

Sample Analytical Parameters/Method: _____

Sample Start Time: 1530End Sample Time: 1540PID/FID READING(s): 0.2

PID/FID Model & Ionization Potential

ODOR/SHEEN: none

COMMENTS:



GROUNDWATER SAMPLE
COLLECTION RECORD

WELL NO.:

GPEC-MW214D

PERMIT NO.:

Project No.: 125180-1-1102

Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions: LT. Rain, 40's

Sampling Date: 12/17/12

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

- a. Depth to LNAPL: N/A (ft) b. Depth to Water: 40.92 (ft)
c. Depth to DNAPL: N/A (ft) d. Total Well Depth: 102.92 (ft)
e. LNAPL Thickness: (a-b) N/A (ft) f. DNAPL Thickness: (c-d) N/A (ft)
g. Length of Water Column: _____ (ft) (a-d)
h. Well Volume: _____ (gal)

Conversion Factors

(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: EPA Low-Flow
b. Field Testing Equipment: _____
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 0935 End Purge Time: 1105

Read No.	Lapse Time (min.)	Purge Rate	Temp (deg. C) (±0.1)	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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PRE PURGE VALUES

		<u>300 ml/min</u>									
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PURGING VALUES

	<u>5</u>		<u>9.25</u>	<u>6.59</u>	<u>1.87</u>	<u>-138</u>	<u>1.85</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>10</u>		<u>10.98</u>	<u>7.64</u>	<u>1.66</u>	<u>-167</u>	<u>1.13</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>15</u>		<u>11.18</u>	<u>7.11</u>	<u>1.69</u>	<u>-169</u>	<u>1.00</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	<u>40.65</u>
	<u>20</u>		<u>11.94</u>	<u>7.15</u>	<u>1.73</u>	<u>-171</u>	<u>0.85</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>25</u>		<u>12.19</u>	<u>7.17</u>	<u>1.81</u>	<u>-168</u>	<u>0.73</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>30</u>		<u>12.22</u>	<u>7.17</u>	<u>1.83</u>	<u>-167</u>	<u>0.71</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>35</u>		<u>11.48</u>	<u>6.92</u>	<u>2.93</u>	<u>-115</u>	<u>0.63</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>40</u>		<u>11.78</u>	<u>6.90</u>	<u>3.08</u>	<u>-107</u>	<u>0.57</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>45</u>		<u>12.00</u>	<u>6.89</u>	<u>3.17</u>	<u>-101</u>	<u>0.54</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>50</u>		<u>11.88</u>	<u>6.86</u>	<u>3.26</u>	<u>-127</u>	<u>0.52</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>55</u>		<u>12.05</u>	<u>6.80</u>	<u>3.33</u>	<u>-105</u>	<u>0.50</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>60</u>		<u>12.18</u>	<u>6.82</u>	<u>3.44</u>	<u>-124</u>	<u>0.50</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>65</u>		<u>12.20</u>	<u>6.78</u>	<u>3.60</u>	<u>-119</u>	<u>0.48</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>70</u>		<u>12.27</u>	<u>6.73</u>	<u>3.75</u>	<u>-111</u>	<u>0.47</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>75</u>		<u>12.24</u>	<u>6.71</u>	<u>3.83</u>	<u>-105</u>	<u>0.46</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	<u>40.65</u>
	<u>80</u>		<u>12.20</u>	<u>6.69</u>	<u>3.87</u>	<u>-95</u>	<u>0.47</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	
	<u>85</u>		<u>12.25</u>	<u>6.68</u>	<u>3.92</u>	<u>-93</u>	<u>0.46</u>	<u>0.0</u>	<u>-</u>	<u>-</u>	

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/OB

Sampling Method(s) & Equip: MP-50 bladder pump

Sample I.D. (Name, Date, Time): _____

Sample Analytical Parameters/Method: _____

Sample Start Time: 1015

End Sample Time: _____

PID/FID READING(s): 0.1 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN: none

COMMENTS: pump would not maintain pressure to displace water, removed O-ring on pump + adjusted.

GAC-MW-219D

Project No.: 125180-1-1102	Client: National Grid
Project Name: Greenpoint RI Phase 1	Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions:	Sampling Date:

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

a. Depth to LNAPL: _____ (ft) **b. Depth to Water:** _____ (ft)
c. Depth to DNAPL: _____ (ft) **d. Total Well Depth:** _____ (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:** _____

b. **Field Testing Equipment:** _____

c. **Required Total Purge Volume (1f x 2c) (gals.):** _____

d. **Total Volume and Number of Well Volumes Removed:** _____

e. **Begin Purge Time:** _____ **End Purge Time:** _____

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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PRE PURGE VALUES

		300 m/m								
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PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel:

Sampling Method(s) & Equip:

Sample I.D. (Name, Date, Time):

Sample Analytical Parameters/Method:

Sample Start Time: 0115

End SampleTime: 1.5

PID/FID READING(s) :

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS:

2 of 2



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW220S

PERMIT NO.:

Project No.:		125180-1-1102		Client:		National Grid																	
Project Name:		Greenpoint RI Phase 1		Project Location:		Greenpoint Energy Center, Brooklyn																	
Weather Conditions:		000000, 40's		Sampling Date:		12/18/12																	
1. WATER LEVEL DATA (measured from top of inner well casing)																							
a. Depth to LNAPL:		N/A		(ft)		b. Depth to Water:		19.51 before pump		(ft)													
c. Depth to DNAPL:		N/A		(ft)		d. Total Well Depth:		24.35		(ft)													
e. LNAPL Thickness:		(a-b)		N/A		(ft)		f. DNAPL Thickness:		(c-d)		N/A		(ft)									
g. Length of Water Column:				(ft)		(a-d)																	
h. Well Volume:				(gal)																			
2. WELL PURGE DATA								Conversion Factors (a x cf = h)															
a. Purge Method:		EPA Low Flow																					
b. Field Testing Equipment:																							
c. Required Total Purge Volume (1f x 2c) (gals.):																							
d. Total Volume and Number of Well Volumes Removed:																							
e. Begin Purge Time:		1040		End Purge Time:																			
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)	
PRE PURGE VALUES																							
1040				300 M/min																			
PURGING VALUES																							
5				16.41		6.42		5.40		51		1.00		0.0		-		-		19.99			
10				16.48		6.43		5.11		41		0.60		0.0									
15				16.43		6.43		5.03		38		0.59		0.0		-		-					
20				16.47		6.45		4.80		37		0.40		0.0		-		-					
25				16.46		6.45		4.40		34		0.44		0.0									
30				16.52		6.46		4.71		32		0.40		0.0		-		-					
35				16.47		6.45		4.56		29		0.77		0.0		-		-					
40				16.58		6.46		4.40		29		0.37		0.0								20.02	
45				16.55		6.47		4.30		29		0.37		50.0									
50				16.55		6.46		4.19		30		0.35		822									
55				16.59		6.46		4.12		30		0.34		764									
60				16.60		6.49		4.05		30		0.35		565									
65				16.61		6.46		3.97		30		0.37		495									
70				16.62		6.49		3.81		32		0.45		204									
75				16.61		6.48		3.77		34		0.38		210									
80				16.69		6.48		3.74		36		0.37		159									
85				16.68		6.49		3.70		36		0.36		199									
3. SAMPLE COLLECTION DATA								Sampling Personnel:								DB/EC							
Sampling Method(s) & Equip:																							
Sample I.D. (Name, Date, Time):								GPEC MW-220S, 12/18/12, 1320															
Sample Analytical Parameters/Method:																							
Sample Start Time:								End Sample Time:															
PID/FID READING(s):								0.0								PID/FID Model & Ionization Potential							
ODOR/SHEEN:								NONE															
COMMENTS:								~ 1.5' of sediment @ bottom.															



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW2201

PERMIT NO.:

Project No.:		125180-1-1102		Client:		National Grid																	
Project Name:		Greenpoint RI Phase 1		Project Location:		Greenpoint Energy Center, Brooklyn																	
Weather Conditions:		Overcast ~ 45°F		Sampling Date:		12/18/12																	
1. WATER LEVEL DATA (measured from top of inner well casing)																							
a. Depth to LNAPL:		N/A		(ft)		b. Depth to Water:		19.61 (before pump)		(ft)													
c. Depth to DNAPL:		N/A		(ft)		d. Total Well Depth:		49.82		(ft)													
e. LNAPL Thickness:		(a-b)		N/A		(ft)		f. DNAPL Thickness:		(c-d)		(ft)											
g. Length of Water Column:		N/A		(ft)		(a-d)																	
h. Well Volume:				(gal)																			
2. WELL PURGE DATA								<table border="1"><thead><tr><th colspan="2">Conversion Factors (a x cf = h)</th></tr><tr><th>Well I.D.</th><th>Conv. Fact. (cf)</th></tr></thead><tbody><tr><td>1</td><td>0.041</td></tr><tr><td>2</td><td>0.163</td></tr><tr><td>4</td><td>0.653</td></tr><tr><td>6</td><td>1.470</td></tr></tbody></table>				Conversion Factors (a x cf = h)		Well I.D.	Conv. Fact. (cf)	1	0.041	2	0.163	4	0.653	6	1.470
Conversion Factors (a x cf = h)																							
Well I.D.	Conv. Fact. (cf)																						
1	0.041																						
2	0.163																						
4	0.653																						
6	1.470																						
a. Purge Method:		EPA low flow																					
b. Field Testing Equipment:																							
c. Required Total Purge Volume (1f x 2c) (gals.):																							
d. Total Volume and Number of Well Volumes Removed:																							
e. Begin Purge Time:		0845		End Purge Time:		0930																	
Read No.	Lapse Time (min.)	Purge Rate	Temp (deg. C) (±10%)	pH (s.u.) (±0.1)	Spec. Cond. (ns/cm) (±3%)	Eh/ORP (mV) (±10mV)	Diss O2 (mg/L) (±10%)	TURB (NTU) (±10%)	Salinity %	TDS G/L	Water Level (ft)												
PRE PURGE VALUES																							
PURGING VALUES																							
1	0830	300	15.57	8.95	0.282	0.281	5.24	34.4	0.01	—	19.61												
2	0855	300	15.46	8.66	0.286	6	1.79	23.1	0.01	—	19.63												
3	0900	300	15.25	7.17	0.390	65	1.35	64.9	0.01	—	19.63												
4	0905	300	15.16	6.59	0.646	108	1.16	35.1	0.01	—	19.63												
5	0910	300	15.11	6.22	0.911	147	1.27	18.0	0.01	—	19.61												
6	0915	300	15.08	6.14	0.988	151	1.29	12.0	0.01	—	19.61												
7	0920	300	15.07	6.12	1.02	152	1.25	8.1	0.01	—	19.61												
8	0925	300	15.05	6.10	1.04	152	1.29	8.0	0.01	—	19.61												
9	0930	300	15.05	6.09	1.05	156	1.23	7.8	0.01	—	19.61												
3. SAMPLE COLLECTION DATA																							
Sampling Method(s) & Equip:						Horiba D-50 bladder pump																	
Sample I.D. (Name, Date, Time):						GPEC-MW-2201																	
Sample Analytical Parameters/Method:																							
Sample Start Time:						0935		End Sample Time:		0945													
PID/FID READING(s):						0.4 ppm																	
ODOR/SHEEN:						no odor detected																	
COMMENTS:																							

-DUP
GPEC
KX
125180
0900



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW220D

PERMIT NO.:

Project No.:	125180-1-1102
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Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions:

Sampling Date:

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

- | | | | | | | | |
|----|-------------------------|------------------|-------|-------|-------------------|---------------------|------|
| a. | Depth to LNAPL: | <u>N/A</u> | (ft) | b. | Depth to Water: | <u>19.52 (pump)</u> | (ft) |
| c. | Depth to DNAPL: | <u>N/A</u> | (ft) | d. | Total Well Depth: | <u>79.71</u> | (ft) |
| e. | LNAPL Thickness: | (a-b) <u>N/A</u> | (ft) | f. | DNAPL Thickness: | (c-d) <u>N/A</u> | (ft) |
| g. | Length of Water Column: | | (ft) | (a-d) | | | |
| h. | Well Volume: | | (gal) | | | | |
- Conversion Factors

2. WELL PURGE DATA

- a. Purge Method: EPA Low-flow
- b. Field Testing Equipment: _____
- c. Required Total Purge Volume (1f x 2c) (gals.): _____
- d. Total Volume and Number of Well Volumes Removed: _____
- e. Begin Purge Time: _____ End Purge Time: _____

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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PRE PURGE VALUES

		30° N/A								
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PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: DB/EC

Sampling Method(s) & Equip:

Sample I.D. (Name, Date, Time): GREEN M 2200, 12/18/12, 1000

Sample Analytical Parameters/Method:

Sample Start Time:

End SampleTime:

PID/FID READING(s) : 0.6 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS:

Project No.:	125180-1-1102	Client:	National Grid
Project Name:	Greenpoint RI Phase 1	Project Location:	Greenpoint Energy Center, Brooklyn
Weather Conditions:	Clear, 40°F, Light Breeze	Sampling Date:	12/13/2012

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

- | | |
|--|---|
| <p>a. Depth to LNAPL: _____ (ft)</p> <p>c. Depth to DNAPL: _____ (ft)</p> <p>e. LNAPL Thickness: (a-b) _____ (ft)</p> <p>g. Length of Water Column: _____ (ft)</p> <p>h. Well Volume: _____ (gal)</p> | <p>b. Depth to Water: <u>12.66</u> (ft)</p> <p>d. Total Well Depth: _____ (ft)</p> <p>f. DNAPL Thickness: (c-d) _____ (ft)</p> <p>(a-d)</p> |
|--|---|
-
- Conversion Factors

2. WELL PURGE DATA

- a. Purge Method: Low flow
- b. Field Testing Equipment: RFD bladder pump
- c. Required Total Purge Volume (1f x 2c) (gals.): _____
- d. Total Volume and Number of Well Volumes Removed: _____
- e. Begin Purge Time: 10:35 End Purge Time: 1130

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 (m/min)	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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PRE PURGE VALUES

[illegible]

PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: Master Sue On

Sampling Method(s) & Equip: QED, low flow

Sample I.D. (Name, Date, Time): GPEC-MW2217 12/13/2012 11:35

Sample Analytical Parameters/Method: *RI list*

Sample Start Time: 1640

End SampleTime: 1135'

PID/FID READING(s) : 0.0 ppm

PID/FID Model & Ionization Potential *Min; RAI 300.0*

ODOR/SHEEN: Slight sulfur odor, no sheen

COMMENTS: Pump ~ 346 off the bottom



Project No.:	125180-1-1102	Client:	National Grid
Project Name:	Greenpoint RI Phase 1	Project Location:	Greenpoint Energy Center, Brooklyn
Weather Conditions:	Clear, 40°F, Light Breeze	Sampling Date:	12/13/2012

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

- | | |
|--|---|
| <p>a. Depth to LNAPL: _____ (ft)</p> <p>c. Depth to DNAPL: _____ (ft)</p> <p>e. LNAPL Thickness: (a-b) _____ (ft)</p> <p>g. Length of Water Column: _____ (ft)</p> <p>h. Well Volume: _____ (gal)</p> | <p>b. Depth to Water: <u>12.66</u> (ft)</p> <p>d. Total Well Depth: _____ (ft)</p> <p>f. DNAPL Thickness: (c-d) _____ (ft)</p> <p>(a-d)</p> |
|--|---|
-
- Conversion Factors

2. WELL PURGE DATA

- a. Purge Method: Low flow
- b. Field Testing Equipment: RFD bladder pump
- c. Required Total Purge Volume (1f x 2c) (gals.): _____
- d. Total Volume and Number of Well Volumes Removed: _____
- e. Begin Purge Time: 10:35 End Purge Time: 11:30

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 (m/min)	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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PRE PURGE VALUES

[illegible]

PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: *Master Sue On*

Sampling Method(s) & Equip: QED, low flow

Sample I.D. (Name, Date, Time): GPEC-MW2217 12/13/2012 11:35

Sample Analytical Parameters/Method: *RI list*

Sample Start Time: 1640

End SampleTime: 1135'

PID/FID READING(s) : 0.0 ppm

PID/FID Model & Ionization Potential *Min; RAI 300.0*

ODOR/SHEEN: Slight sulfur odor, no sheen

COMMENTS: Pump ~ 346 off the bottom

Project No.:	125180-1-1102	Client:	National Grid
Project Name:	Greenpoint RI Phase 1	Project Location:	Greenpoint Energy Center, Brooklyn
Weather Conditions:	clear ~ 40°F		Sampling Date:
	light breeze		12/13/12

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

- | | |
|---|--|
| <p>a. Depth to LNAPL: _____ (ft)</p> <p>c. Depth to DNAPL: _____ (ft)</p> <p>e. LNAPL Thickness: (a-b) _____ (ft)</p> <p>g. Length of Water Column: _____ (ft)</p> <p>h. Well Volume: _____ (gal)</p> | <p>b. Depth to Water: <u>1237</u> (ft)</p> <p>d. Total Well Depth: _____ (ft)</p> <p>f. DNAPL Thickness: (c-d) _____ (ft)</p> <p>(a-d)</p> |
| <div style="border: 1px solid black; display: inline-block; padding: 5px;">Conversion Factors</div> | |

2. WELL PURGE DATA

- a. Purge Method: low flow
- b. Field Testing Equipment: DEF bladder pump
- c. Required Total Purge Volume (1f x 2c) (gals.): _____
- d. Total Volume and Number of Well Volumes Removed: _____
- e. Begin Purge Time: 1430 End Purge Time: 1510

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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PRE PURGE VALUES

[illegible]

PURGING VALUES

1	14.35	300	14.19	7.46	1.23	-136	5.68	0.0	0.06	0.788	12.52
2	14.40	300	14.13	7.23	1.23	-149	1.60	0.0	0.06	0.788	12.50
3	14.45	300	14.18	7.18	1.24	-154	1.17	0.0	0.06	0.796	12.50
4	14.50	300	14.20	7.14	1.26	-156	1.00	0.0	0.06	0.804	12.50
5	14.55	300	14.21	7.12	1.28	-156	0.86	0.0	0.06	0.820	12.50
6	1500	300	14.22	7.09	1.30	-150	0.78	0.0	0.06	0.834	12.49
7	1505	300	14.25	7.07	1.32	-155	0.72	0.0	0.06	0.844	12.50
8	1510	300	14.21	7.06	1.33	-155	0.69	0.0	0.06	0.848	12.51

3. SAMPLE COLLECTION DATA

Sampling Personnel: mstep / Sve 01

Sampling Method(s) & Equip: QF, low flow

Sample I.D. (Name, Date, Time): GPCC - MW 2010, 12/13/2012 15:15

Sample Analytical Parameters/Method: RT 1.51

Sample Start Time: 1430

End SampleTime: 1515

PID/FID READING(S) : 0.2 pp^m

PID/FID Model & Ionization Potential *Min. Pres 5000*

ODOR/SHEEN: No odor / sheen

COMMENTS: The pump was malfunctioning due to 2 O-rings misplaced. Had

Project No.: 125180-1-1102	Client: National Grid
Project Name: Greenpoint RI Phase 1	Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: 40° 50% RH	Sampling Date: 12/13/12

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

- | | | | | | | | |
|----|-------------------------|------------------|-------|-------|---|------------------|------|
| a. | Depth to LNAPL: | <u>N/A</u> | (ft) | b. | Depth to Water: | <u>5.13</u> | (ft) |
| c. | Depth to DNAPL: | <u>N/A</u> | (ft) | d. | Total Well Depth: | <u>12.15</u> | (ft) |
| e. | LNAPL Thickness: | (a-b) <u>N/A</u> | (ft) | f. | DNAPL Thickness: | (c-d) <u>N/A</u> | (ft) |
| g. | Length of Water Column: | <u>7.02</u> | (ft) | (a-d) | | | |
| h. | Well Volume: | <u>1.144</u> | (gal) | | <div style="border: 1px solid black; padding: 5px; display: inline-block;">Conversion Factors</div> | | |

2. WELL PURGE DATA

- a. Purge Method: EPA low flow
b. Field Testing Equipment: bladder pump
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 1030 End Purge Time: 1135

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.	Begin Range Time: 10:30				End Range Time: 11:00				Salinity %	TDS G/L	Water Level (ft)
	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%)			

PRE PURGE VALUES

	300m									
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PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/DJ

Sampling Method(s) & Equip: 1cc flow. MPSC bladder pump

Sample I.D. (Name, Date, Time): mh - 222 S

Sample Analytical Parameters/Method:

Sample Start Time: 1140

End SampleTime: 1143

PID/FID READING(s): 0.1
ODOR/SHEEN: none / clear colorless

PID/FID Model & Ionization Potential

COMMENTS:



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-MW222D

PERMIT NO.:

Project No.: 125180-1-1102

Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions:

Sampling Date:

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

- a. Depth to LNAPL: N/A (ft) b. Depth to Water: 10.31 (ft)
c. Depth to DNAPL: N/A (ft) d. Total Well Depth: _____ (ft)
e. LNAPL Thickness: (a-b) N/A (ft) f. DNAPL Thickness: (c-d) N/A (ft)
g. Length of Water Column: _____ (ft) (a-d)
h. Well Volume: _____ (gal)

Conversion Factors

(a x cf = h)

Well I.D. Conv. Fact. (cf)

1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: EPA Low Flow
b. Field Testing Equipment: bladder pump
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 13:25 End Purge Time: 14:40

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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PRE PURGE VALUES

		300 ml									
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PURGING VALUES

5			13.64	7.36	1.52	-70	4.10	10.0	-	-	
10			13.89	7.97	1.52	-99	2.98	9.0	-	-	
15			13.63	8.17	1.56	-104	2.49	13.4	-	-	
20			13.96	8.29	1.56	-117	1.89	13.3	-	-	12.05
25			14.04	8.36	1.56	-130	1.19	11.7	-	-	
30			14.00	8.40	1.56	-138	0.88	10.9			
35			13.91	8.42	1.57	-146	0.76	9.9			12.88
40			13.87	8.44	1.58	-158	0.69	10.6			
45			13.93	8.45	1.59	-159	0.50	11.3			14.41
50			13.89	8.46	1.60	-161	0.92	12.9			
55			13.81	8.45	1.60	-156	1.71	10.0			15.56
60			13.74	8.43	1.59	-151	1.79	9.7			
65			13.72	8.42	1.59	-150	1.63	11.1			
70			13.64	8.40	1.58	-146	1.64	17.2			19.52
75			13.60	8.35	1.58	-141	1.71	19.1			
80	✓		13.57	8.33	1.57	-138	1.60	23.1			

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/OBSampling Method(s) & Equip: Low Flow MP-50 bladder pumpSample I.D. (Name, Date, Time): MW-222DSample Analytical Parameters/Method: MS/MSDSample Start Time: 1500End Sample Time: 1505PID/FID READING(s): 1.6 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: Flow rate varied/diminished after initial set. Required adjusting to maintain flow

GPEL MAY 101 VVT

PERMIT NO.:

Project No.:	125180-1-1102
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Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions:

Sampling Date:

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

a.	Depth to LNAPL:		(ft)	b.	Depth to Water:	11.10	(ft)
c.	Depth to DNAPL:		(ft)	d.	Total Well Depth:		(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

b. **Field Testing Equipment:** Horiba U-52

c. **Required Total Purge Volume (1f x 2c) (gals.):** NA

d. **Total Volume and Number of Well Volumes Removed:** _____

e. **Begin Purge Time:** _____ **End Purge Time:** _____

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. (ns/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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PRE PURGE VALUES

1			18-06	7-07	6.69	226	1.09	29.1		3.63	11.12
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PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: MTS AA

Sampling Method(s) & Equip: Low Flow QED Bubbler

Sample I.D. (Name, Date, Time): GPEC-MW-101WT 12/14/12 1130

Sample Analytical Parameters/Method: See WP

Sample Start Time: 11:30

End SampleTime:

PID/FID READING(s): 4.7 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: Pump intake: 14th

Project No.: 125180-1-1102	Client: National Grid
Project Name: Greenpoint RI Phase 1	Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions:	Sampling Date:

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

- | | | | | | |
|----|-------------------------|-------------|-------|------------------------|--------------------|
| a. | Depth to LNAPL: | _____ (ft) | b. | Depth to Water: | <u>10.96</u> (ft) |
| c. | Depth to DNAPL: | _____ (ft) | d. | Total Well Depth: | _____ (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 |

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

2. WELL PURGE DATA

- a. Purge Method: Low Flow
- b. Field Testing Equipment: Horton V-52
- c. Required Total Purge Volume (1f x 2c) (gals.): _____
- d. Total Volume and Number of Well Volumes Removed: _____
- e. Begin Purge Time: _____ End Purge Time: _____

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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PRE PURGE VALUES

1		150	14:14	7.73	2.62	-191	2.49	155		1.53	10.96
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PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel:

Sampling Method(s) & Equip: Low flow QED Blender Teflon.

Sample I.D. (Name, Date, Time): GPEC Mw-101 12/14/12 1315

Sample Analytical Parameters/Method: See WP

Sample Start Time: 13:15

End SampleTime:

PID/FID READING(s) : 17.78 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN: ~~none~~ "cloudy/grey

COMMENTS: Pump Intake: 72°







GROUNDWATER SAMPLE WELL NO.:
COLLECTION RECORD PERMIT NO.:

G-PEC-MW-103

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: 40's + sunny Sampling Date: 12/20/12

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

a. Depth to LNAPL: NA (ft) b. Depth to Water: 5.92 (ft)
c. Depth to DNAPL: NA (ft) d. Total Well Depth: (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: EPA Low Flow
b. Field Testing Equipment: bladder pump
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 0800 End Purge Time: 0920

Conversion Factors (a x cf = b)	
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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PRE PURGE VALUES

		300mg/l									5.92
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PURGING VALUES

	-		12.16	5.98	5.95	-22	425	0.0	-	-	-
	5		14.02	6.90	5.20	-117	1.68	0.0	-	-	-
	10		14.27	7.03	4.13	-125	1.43	0.0	-	-	-
	15		14.42	7.13	3.72	-132	1.17	0.0	-	-	-
	20		14.46	7.14	3.15	-138	1.03	0.0	-	-	-
	25		14.62	7.21	2.66	-143	0.89	0.0	-	-	5.84
	30		14.59	7.22	2.76	-144	0.79	0.5	-	-	-
	35		14.62	7.25	2.77	-146	0.70	4.5	-	-	-
	40		14.64	7.28	2.93	-147	0.63	6.2	-	-	-
	45		14.67	7.26	2.89	-149	0.40	10.9	-	-	-
	50		14.69	7.26	2.70	-151	0.57	4.4	-	-	-
	55		14.71	7.24	2.64	-151	0.56	5.0	-	-	-
	60		14.46	7.25	2.50	-153	0.54	16.8	-	-	5.95
	65		14.78	7.25	2.51	-155	0.48	19.7	-	-	-
	70		14.77	7.25	2.44	-157	0.45	23.8	-	-	-
	75		-	-	-	-	-	-	-	-	-

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/DJ

Sampling Method(s) & Equip: Low flow - bladder / Horiba

Sample I.D. (Name, Date, Time): G-PEC-MW-103

Sample Analytical Parameters/Method:

Sample Start Time: 0930

End Sample Time: 0940

PID/FID READING(s):

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS:



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

MW-4

PERMIT NO.:

Project No.:		125180-1-1102		Client:		National Grid													
Project Name:		Greenpoint RI Phase 1		Project Location:		Greenpoint Energy Center, Brooklyn													
Weather Conditions:		Cloudy, Overcast, light fog, No Sun 45°F		Sampling Date:		12/18/2012													
1. WATER LEVEL DATA (measured from top of inner well casing)																			
a. Depth to LNAPL:		(ft)		b. Depth to Water:		50.05 (ft)													
c. Depth to DNAPL:		(ft)		d. Total Well Depth:		54.81 (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																	
b. Field Testing Equipment:		QEC Bladder Pump																	
c. Required Total Purge Volume (1f x 2c) (gals.):																			
d. Total Volume and Number of Well Volumes Removed:																			
e. Begin Purge Time:		0810		End Purge Time:		0900													
<table border="1"><thead><tr><th colspan="2">Conversion Factors (a x cf = h)</th></tr><tr><th>Well I.D.</th><th>Conv. Fact. (cf)</th></tr></thead><tbody><tr><td>1</td><td>0.041</td></tr><tr><td>2</td><td>0.163</td></tr><tr><td>4</td><td>0.653</td></tr><tr><td>6</td><td>1.470</td></tr></tbody></table>								Conversion Factors (a x cf = h)		Well I.D.	Conv. Fact. (cf)	1	0.041	2	0.163	4	0.653	6	1.470
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)								
PRE PURGE VALUES																			
01	—	350	10.48	3.86	0.002	329	11.68	91.0	0.00	0.001	50.05								
PURGING VALUES																			
01	5	350	13.57	6.19	0.701	213	5.37	6.4	0.03	448	50.05								
02	10	350	13.75	6.26	0.697	212	5.27	2.9	0.03	446									
03	15	350	13.83	6.29	0.697	213	5.05	2.7	0.03	446									
04	20	350	13.85	6.29	0.696	214	5.05	2.4	0.03	445									
05	25	350	13.87	6.30	0.696	215	5.26	2.3	0.03	445	50.04								
06	30	350	13.89	6.30	0.694	216	5.23	1.8	0.03	444									
07	35	350	13.91	6.31	0.695	216	5.15	1.7	0.03	444									
08	40	350	13.88	6.31	0.694	217	5.21	1.4	0.03	445	50.05								
09	45	350	13.77	6.31	0.694	218	5.11	1.5	0.03	444									
10	50	350	13.71	6.31	0.694	218	5.07	1.1	0.03	445	50.04								
3. SAMPLE COLLECTION DATA																			
Sampling Method(s) & Equip:						Low-Flow QEC Bladder Pump													
Sample I.D. (Name, Date, Time):						MW-3 12/18/2012 0930													
Sample Analytical Parameters/Method:																			
Sample Start Time:						0900													
End Sample Time:						0930													
PID/FID READING(s):						1.1													
ODOR/SHEEN:						None/None													
COMMENTS:						None													
PID/FID Model & Ionization Potential						Mini RAE 3000													



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

MW-5

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Overcast, No Sun 45°F Sampling Date: 12/18/2012

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

- a. Depth to LNAPL: (ft) b. Depth to Water: 45.53 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: 50.12 (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
b. Field Testing Equipment: OEC Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 0955 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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PRE PURGE VALUES

∞	—	350	12.91	6.43	0.803	214	5.92	9.7	0.04	.516	45.53
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PURGING VALUES

01	5	350	14.36	6.45	0.806	213	4.39	9.1	0.04	.516	46.10
02	10	350	14.50	6.43	0.809	211	4.01	4.8	0.04	.517	46.36
03	15	350	14.35	6.44	0.811	210	3.50	6.7	0.04	.519	46.55
04	20	350	14.20	6.43	0.817	208	3.14	10.3	0.04	.523	46.67
05	25	350	14.09	6.45	0.822	208	2.92	10.9	0.04	.526	46.75
06	30	350	13.83	6.45	0.826	206	2.74	10.9	0.04	.531	46.79
07	35	350									
08	40	350	13.62	6.46	0.827	204	2.97	11.3	0.04	.529	
09	45	350									
10	50	350									

3. SAMPLE COLLECTION DATA

Sampling Personnel:

J. Pake/G.C. Schmidt

Sampling Method(s) & Equip: Low-Flow OEC Bladder Pump

Sample I.D. (Name, Date, Time): MW-5 12/18/2012 1140

Sample Analytical Parameters/Method:

Sample Start Time: 1115

End Sample Time: 1140

PID/FID READING(s): 0.0

PID/FID Model & Ionization Potential Min: RAE 3000

ODOR/SHEEN: None/None

COMMENTS: Paused purge from 1025-1035 due to water draw down in well. Allowed well to



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

PZ-1

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Windy, Cloudy, No Sun 40°F Sampling Date: 12/17/2012

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

- a. Depth to LNAPL: _____ (ft) b. Depth to Water: 53.75 (ft)
c. Depth to DNAPL: _____ (ft) d. Total Well Depth: 62.83 (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

(a x cf = h)

Well I.D. Conv. Fact. (cf)

1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: Low-Flow
b. Field Testing Equipment: QEC Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 1420 End Purge Time: 1510

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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PRE PURGE VALUES

00	—	350	13.00	6.62	0.975	196	7.29	32.7	0.05	.617	53.75
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PURGING VALUES

01	5	350	13.60	6.47	0.955	199	7.30	32.0	0.05	.610	
02	10	350	13.65	6.45	0.957	200	6.99	8.1	0.05	.613	
03	15	350	13.65	6.44	0.963	201	6.55	1.1	0.05	.615	
04	20	350	13.67	6.42	0.960	201	6.16	0.9	0.05	.614	53.76
05	25	350	13.62	6.42	0.959	201	6.04	0.8	0.05	.615	
06	30	350	13.58	6.42	0.959	201	5.80	0.8	0.05	.613	
07	35	350	13.67	6.43	0.956	202	5.60	0.8	0.05	.613	53.76
08	40	350	13.68	6.42	0.958	202	2.2529	6.7	0.05	.612	
09	45	350	13.65	6.43	0.959	202	5.19	0.6	0.05	.614	
10	50	350	13.78	6.44	0.957	202	4.88	0.7	0.05	.612	

3. SAMPLE COLLECTION DATA

Sampling Personnel:

J. Peake / G. Schmitt

Sampling Method(s) & Equip: Low-Flow QEC Bladder pumpSample I.D. (Name, Date, Time): PZ-1 12/17/2012

Sample Analytical Parameters/Method: _____

Sample Start Time: 1510End Sample Time: 1525PID/FID READING(s): 0.2PID/FID Model & Ionization Potential Mini Rac 3000

ODOR/SHEEN:

COMMENTS:



GROUNDWATER SAMPLE WELL NO.:
COLLECTION RECORD PERMIT NO.:

PZ-2

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Overcast, High Wind, Rain 55°F Sampling Date: 12/21/2012

1. WATER LEVEL DATA (measured from top of inner well casing)
a. Depth to LNAPL: (ft) b. Depth to Water: 5.87 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: 21.33 (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 (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA
a. Purge Method: Low-Flow
b. Field Testing Equipment: DEC Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 0850 End Purge Time: 0940

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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PRE PURGE VALUES
00 - 250 12.73 5.63 2.09 -34 0.94 664 0.11 1.34 6.52

PURGING VALUES

01	5	200	12.71	5.67	2.19	-44	0.65	377	0.11	1.41	
02	10	200	12.74	5.66	2.45	-51	0.58	177	0.12	1.58	6.53
03	15	200	12.75	5.65	2.95	-60	0.59	57.0	0.15	1.89	
04	20	200	12.76	5.67	3.21	-65	0.46	47.3	0.17	2.06	
05	25	200	12.77	5.70	3.25	-70	0.48	49.2	0.17	2.08	
06	30	200	12.75	5.70	3.17	-72	0.47	43.9	0.16	2.02	6.73
07	35	200	12.75	5.71	3.06	-73	0.45	45.1	0.16	1.95	
08	40	200	12.78	5.71	2.97	-74	0.43	34.6	0.15	1.89	
09	45	200	12.53	5.69	2.86	-74	0.42	19.7	0.15	1.83	
10	50	200	12.22	5.69	2.82	-75	0.41	16.2	0.15	1.81	6.64

3. SAMPLE COLLECTION DATA Sampling Personnel: J. Parke / AC Schmidt
Sampling Method(s) & Equip: Low-Flow DEC Bladder Pump
Sample I.D. (Name, Date, Time): PZ-2, 12/21/2012, 1010
Sample Analytical Parameters/Method:
Sample Start Time: 0940 End Sample Time: 1010

PID/FID READING(s): No J-Plug in well. No PID Reading
ODOR/SHEEN:
COMMENTS: No J-Plug in well.

~~GPEC~~ WI

Project No.: 125180-1-1102

Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions: Sunny, 30's

Sampling Date: 12/19/12

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

a. Depth to LNAPL: N/A (ft) b. Depth to Water: 10.46 (ft)

c. Depth to DNAPL: N/A (ft) d. Total Well Depth: 19.66 (ft)

e. LNAPL Thickness: (a-b) N/A (ft) f. DNAPL Thickness: (c-d) N/A (ft)

g. Length of Water Column: (ft) (a-d)

h. Well Volume: (gal)

2. WELL PURGE DATA

a. Purge Method: EPA Low-Flow
b. Field Testing Equipment: U-52 / MP-50
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 1250 End Purge Time: 1300

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

End Purge Time: 1340									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)
PRE PURGE VALUES											

PRE PURGE VALUES

300ml	300ml									
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PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/OB

Sampling Method(s) & Equip:

Sample I.D. (Name, Date, Time):

Sample Analytical Parameters/Method:

Sample Start Time: 1400

End SampleTime: 14.15

PID/FID READING(s) : 672 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN: Strong, PLU

COMMENTS:

GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.: ~~GREC~~ W-2

PERMIT NO.:

Project No.:	125180-1-1102
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Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions: Sunny 30°

Sampling Date: 12/19/12

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

- | | |
|---|---|
| <p>a. Depth to LNAPL: <u>NA</u> (ft)</p> <p>c. Depth to DNAPL: <u>NA</u> (ft)</p> <p>e. LNAPL Thickness: (a-b) <u>NA</u> (ft)</p> <p>g. Length of Water Column: _____ (ft)</p> <p>h. Well Volume: _____ (gal)</p> | <p>b. Depth to Water: <u>10.81</u> (ft)</p> <p>d. Total Well Depth: <u>19.71</u> (ft)</p> <p>f. DNAPL Thickness: (c-d) <u>—</u> (ft)</p> <p>(a-d)</p> |
|---|---|
-
- Conversion Factors

2. WELL PURGE DATA

- a. Purge Method: bladder pump
b. Field Testing Equipment: U-52 / bladder pump
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 1055 End Purge Time: 1155

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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PRE PURGE VALUES

[illegible]

PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/OB

Sampling Method(s) & Equip: MP-50

Sample I.D. (Name, Date, Time):

Sample Analytical Parameters/Method:

Sample Start Time: 1210

End SampleTime: 1220

PID/FID READING(s): 1018 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN: Strong PLO

COMMENTS: 4" wall

clear H_2O w/ slight "shine".



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-GT-01 (MW-18)

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase I Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Clear 40°F breezy Sampling Date: 12/19/12

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

a. Depth to LNAPL: (ft) b. Depth to Water: 12.05 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: (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
b. Field Testing Equipment: Horiba U-52
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 0945 End Purge Time:

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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PRE PURGE VALUES

1	0950	400	14.55	12.58	9.92	-282	2.56	80	0.56	-	12.05
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PURGING VALUES

2	0955	400	14.35	11.75	16.5	-326	1.53	131	1.00	-	15.25
3	1000	400	14.37	10.23	20.8	-272	1.73	186	1.35	-	19.70
4	1005	350	14.34	9.42	26.0	-286	1.26	100	1.59	-	15.68
5	1010	350	14.26	8.93	31.3	-300	1.31	71.9	1.92	-	15.80
6	1015	350	14.29	8.79	31.9	-312	1.18	57.7	1.98	-	15.80
7	1020	350	14.11	7.91	34.1	-326	3.66	43.6	2.11	-	15.34
8	1025	300	14.17	7.87	34.4	-327	3.97	42.5	2.12	-	15.35
9	1030	300	14.19	7.86	34.2	-328	4.11	39.5	2.13	-	15.40
10	1035	300	14.18	7.77	32.9	-339	7.70	26.9	2.09	-	15.40
11	1040	300	14.18	7.73	35.1	-339	7.12	21.2	2.19	-	15.40
12	1045	300	14.20	7.68	35.2	-345	6.78	17.6	2.18	-	15.40
13	1050	300	14.19	7.67	35.3	-347	6.84	18.0	2.18	-	15.40
14	1055	300	14.19	7.67	35.3	-348	6.87	16.3	2.20	-	15.40
15	1100	300	14.20	7.67	35.1	-348	6.89	16.8	2.18	-	15.40
16	1105	300	14.21	7.66	35.2	-349	6.89	16.7	2.20	-	15.40

3. SAMPLE COLLECTION DATA

Sampling Personnel: MJS

Sampling Method(s) & Equip: Low Flow QG Sample P-0
Sample I.D. (Name, Date, Time): GPEC-GT-01 (MW-18) 12/19/12 11:10
Sample Analytical Parameters/Method:
Sample Start Time: 11:10 End Sample Time:

PID/FID READING(s): 0.1 PID/FID Model & Ionization Potential

ODOR/SHEEN: grey film, nGP like odor

COMMENTS: MS/MSO



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC-GT-3 (MW-8)

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Sunny, 30° Sampling Date: 12/20/12

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

- a. Depth to LNAPL: (ft) b. Depth to Water: 5.61 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: (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: EPA
b. Field Testing Equipment: MP-50 / U-52
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 1030 End Purge Time: 1150

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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PRE PURGE VALUES

		3000									
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PURGING VALUES

1030	—		12.98	6.87	0.675	-104	3.82	0.0	—	—	—
	5		13.06	6.77	0.644	-111	2.01	0.0	—	—	—
	10		12.64	6.71	0.650	-113	1.13	0.0	—	—	—
	15		12.63	6.71	0.653	-114	1.10	20.7	—	—	—
	20		12.62	6.72	0.770	-124	0.99	170	—	—	—
	25		12.88	6.72	0.912	-130	0.60	12.4	—	—	—
	30		13.00	6.80	0.963	-131	0.61	0.9	—	—	—
	35		13.25	6.81	0.999	-130	0.54	0.0	—	—	—
	40		13.45	6.83	0.995	-132	0.48	0.0	—	—	—
	45		13.50	6.84	1.16	-133	0.44	0.0	—	—	—
	50		13.57	6.86	1.21	-133	0.40	0.0	—	—	—
	55		13.60	6.87	1.29	-135	0.41	0.0	—	—	—
	60		13.73	6.88	1.28	-132	0.38	10.8	—	—	—
	65		13.75	6.86	1.28	-130	0.20	11.5	—	—	—
	70		13.78	6.87	1.31	-129	0.37	8.6	—	—	—
	75		13.80	6.87	1.34	-127	0.35	6.6	—	—	—
	80		13.86	6.88	1.34	-127	0.34	3.2	—	—	12.31

3. SAMPLE COLLECTION DATA

Sampling Personnel: EC/DB

Sampling Method(s) & Equip: EPA Low Flow / bladder pump / Honda U-52

Sample I.D. (Name, Date, Time): GPEC-GT-3 (MW-16), 12/14, 1200

Sample Analytical Parameters/Method:

Sample Start Time: 1200

End Sample Time: 1220

PID/FID READING(s): 3.6 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN: None NLO - loose sediment on pump after recovery

COMMENTS: Abies N-945 - malfunctioning draw probe.



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC GT 45

PERMIT NO.:

Project No.: 125180-1-1102

Client: National Grid

Project Name: Greenpoint RI Phase 1

Project Location: Greenpoint Energy Center, Brooklyn

Weather Conditions:

Sampling Date: 12/20/12

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

- a. Depth to LNAPL: _____ (ft) b. Depth to Water: 7.28 (ft)
c. Depth to DNAPL: _____ (ft) d. Total Well Depth: 19 ft (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
b. Field Testing Equipment: Honiba u-52
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: _____ End Purge Time: _____

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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PRE PURGE VALUES

1	1055	400	16.19	6.66	5.00	-28	2.61	453	0.27	-	
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PURGING VALUES

2	1100	350	16.25	6.67	4.99	-89	2.41	41.9	0.27	-	7.31
3	1105	350	16.52	6.67	4.85	-100	1.28	25.8	0.26	-	7.33
4	1110	350	16.66	6.68	4.64	-111	0.95	0.0	0.25	-	7.35
5	1115	350	16.65	6.68	4.60	-112	0.91	0.0	0.24	-	7.36
6	1120	350	16.65	6.68	4.49	-115	0.85	0.0	0.24	-	7.34
7	1125	350	16.65	6.69	4.39	-118	0.79	0.0	0.23	-	7.36
8	1130	350	16.66	6.68	4.38	-118	0.78	0.0	0.23	-	7.35
9	1135	350	16.68	6.70	4.33	-120	0.72	0.0	0.23	-	7.34
10	1140	350	16.69	6.69	4.32	-121	0.71	0.0	0.23	-	7.35
11	1145	350	16.68	6.70	4.32	-121	0.78	0.0	0.23	-	7.35
12	1150	350	16.68	6.70	4.31	-122	0.78	0.0	0.23	-	7.34
13	1155	350	16.68	6.70	4.32	-121	0.77	0.0	0.23	-	7.35

3. SAMPLE COLLECTION DATA

Sampling Personnel: MTS/AASampling Method(s) & Equip: GPEC GT 45Sample I.D. (Name, Date, Time): GPEC GT 45 (MW-145) 12/20/12 11:55

Sample Analytical Parameters/Method: _____

Sample Start Time: 11:55

End Sample Time: _____

PID/FID READING(s): 162.5ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: Moderate MGP like odor pump intake @ 15 ft b TOC





GPEC-GT-5 (mm) 15

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

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

- ## 2. WELL PURGE DATA

- | 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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PRE PURGE VALUES

[illegible]

PURGING VALUES

[illegible]

3. SAMPLE COLLECTION DATA

Sampling Personnel:

Sampling Method(s) & Equipment: *leafy flow / bladder pump / U-52*

Sample I.D. (Name, Date, Time): GPEC-GT-5 (mL-15) 14:30

Sample Analytical Parameters/Method:

Sample Start Time: 1430 End SampleTime: 1445

PID/FID Model & Ionization Potential

ODOR/SHEEN: Strong NLO/PLC

COMMENTS:



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPEC GT 07 (MW 19)

PERMIT NO.:

Project No.: 125180-1-1102 Client: National Grid
Project Name: Greenpoint RI Phase 1 Project Location: Greenpoint Energy Center, Brooklyn
Weather Conditions: Sampling Date:

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

- a. Depth to LNAPL: (ft) b. Depth to Water: 10.15 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: (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
(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

- a. Purge Method: Low Flow
b. Field Testing Equipment: Horiba U-52
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: End Purge Time:

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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PRE PURGE VALUES

1	1340		16.80	6.35	2.15	-106	1.39	67.6	0.10	-	10.26
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PURGING VALUES

2	1345	300	16.81	6.30	2.01	-96	1.28	54.5	0.10	-	10.25
3	1350	300	16.95	6.34	2.16	-105	0.95	33.1	0.10	-	10.18
4	1355	300	16.99	6.35	2.19	-111	0.79	17.9	0.10	-	10.19
5	1400	300	16.98	6.36	2.24	-114	0.72	12.3	0.11	-	10.16
6	1405	300	16.99	6.36	2.27	-116	0.71	7.7	0.12	-	10.20
7	1410	300	16.98	6.37	2.28	-117	0.68	7.1	0.12	-	10.18
8	1415	300	16.99	6.37	2.29	-118	0.67	5.8	0.12	-	10.19
9	1420	300	16.98	6.37	2.29	-117	0.68	5.7	0.12	-	10.18
10	1425	300	16.99	6.37	2.29	-117	0.68	5.7	0.12	-	10.18

Sample Time

3. SAMPLE COLLECTION DATA

Sampling Personnel:

Sampling Method(s) & Equip: QED Sample pump

Sample I.D. (Name, Date, Time): GPEC-GT-7 (MW 19) 12/18/12 1425

Sample Analytical Parameters/Method:

Sample Start Time: 1425

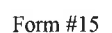
End Sample Time:

PID/FID READING(s): 0.0 ppm

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS:



Form #15

Low-Flow Groundwater Sampling Form

Project number and name: 125140-2-1202 Sampling personnel: DB Sample date: 1/7/16 Well ID: GPEC-MW-101WT

Well location description: MW-101WT

Well construction:

Well diameter: 2"

Well measurement point: PVC

Speedbox condition: OK

Well screen interval: 8-18

Well depth: 19.48

Sampling Information

Initial depth to water: 11.21 Time: 1310

Screen intake depth: ~13'

Pump type and ID: MP-50 Bladder

Stabilized flow rate: ~500 mL/min

Stabilized flow rate in flow rate with no further drawdown

Samples Collected

VOCs 8260

SVCs 8270

VPI

BPI

Metals

PCBs

Other

Field values at time of sample collection:

Time: 1405 Depth to water: —

Sp. Cond. — mS/cm

DO — mg/L

ORP — mV

pH — s.u.

Temp. — °C

Turb. — NTU

Cumulative Time (min.)	Volume (gal)	Water Depth (ft)	Temp. (°C)	Sp. Cond. (µm)	DO (%)	pH	ORP (mV)	Turb. (NTU)
1325	0	11.25	16.77	5.71	0.55	6.96	196	12.2
1330	2.5	11.25	16.84	5.12	0.24	6.96	200	9.4
1335	5	11.22	17.07	5.10	0.00	6.96	224	4.5
1340	7.5	11.25	17.15	5.00	0.00	6.96	235	0.7
1345	10	11.25	17.16	4.88	0.00	6.96	242	0.6
1350	12.5	11.25	17.19	4.79	0.00	6.96	252	0.0
1355	15	11.25	17.16	4.69	0.00	6.96	252	0.0
1400	17.5	11.25	17.14	4.67	0.00	6.96	251	0.0

Sample Information:

Sample ID: GPEC-MW-101WT

Sample Time: 1405

Color: clear

Turbidity: None

Field Filtered ☒ YES ☐ NO Analyses: PCB's

Filter type: 7 micron

Odor/Sneak/NAPL: None

Duplicate Collected YES ☒ NO ☐

If yes, duplicate ID: —

Purge water disposal? to ground ☒ drummed ☐ other: —

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =

$3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
where $r = 1/2 \text{ diameter in ft}$

Stabilization Criteria:

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

Guidance:

- 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 VPI and VOC samples, if stabilization flow rate is less than 200 mL/min, contact PM.

Notes:

Low-Flow Groundwater Sampling Form

GPEC

Project number and name: 125180-2-1202

Sampling personnel: DB

Sample date: 1/7/16

Well ID: MW-333I

Well location description: MW-333I

Sampling Information

Samples Collected

Field values at time of sample collection:

Well Construction

Initial depth to water

12.14 Time: 1020

VOCs 8260

Time: 1105

Depth to water:

Well Construction

Screen intake depth

~33'

SVOCs 8270

Sp. Cond.

mS/cm

Well diameter

2"

Pump type and ID

MP-50 Bladder

VPH

DO

mg/L

Well measurement point

PVC

Stabilized flow rate

5 L/min

SPH

ORP

mV

Roadbox location

good

Stabilized flow rate or flow rate with no further drawdown

Metals

pH

s.u.

Well screen interval

30-40'

PCBs

Temp.

°C

Well depth

37.61

Other

Turb.

NTU

Cumulative Time (min)	Volume (L)	Water Depth (ft)	Temp. (°C)	Sp. Cond. (µm)	DO (%)	pH	ORP (mV)	Turb. (NTU)
1025	0	12.12	13.55	2.54	10.60	6.84	-315	632
1050	2.5	12.45	13.65	2.68	7.44	6.79	-334	240
1055	5	12.45	13.70	2.67	6.90	6.77	-333	214
1040	7.5	12.45	13.70	2.67	7.19	6.78	-334	175
1045	10	12.45	13.75	2.66	7.67	6.78	-334	108
1050	12.5	12.45	13.74	2.65	7.95	6.78	-344	64
1055	15	12.45	13.72	2.66	7.95	6.78	-350	61
1100	17.5	12.45	13.68	2.66	7.83	6.78	-353	58

Sample information:

Sample ID: GPEC MW-333I

Sample Time:

1105

Color:

Clear

Turbidity:

Low

Field Filtered YES/NO

Analyses:

Filter type:

Odor/Shear/NAPL

No Shear / HLG Slight

Duplicate Collected YES/NO

If yes, duplicate ID:

Purge water disposal?

to ground

drummed

other:

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.60

Well volume =

3.14 x (r)² x 7.48 gal/ft

where r = 1/2 diameter in ft

Stabilization Criteria:

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

Guidance:

- 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.

Notes:

Low-Flow Groundwater Sampling Form

GPEC

Project number and name 125180-3-200Sampling personnel JBSample date 4/7/16Well ID MW-333DWell location description: MW-333DAlong Maupeth Ave

Well Construction:

Well diameter: 2"Well measurement point: PVCRoadbox condition: good

Well screen interval:

Well depth: 63.72

Sampling Information

Initial depth to water: 12.03 Time: 0835Screen intake depth: NSS'Pump type and ID: Bladder MP-50Stabilized flow rate: 0.5 L/min

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260

SVOCs 8270

MPH

EPH

Metals

PCBs

Other

Field values at time of sample collection:

Time: 1000

Depth to water:

Sp. Cond. _____ mS/cm

DO _____ mg/L

ORP _____ mV

pH _____ s.u.

Temp. _____ °C

Turb. _____ NTU

Time (min)	Volume (L)	Water depth (ft)	Temp. (°C)	Sp. Cond. (µmS/cm)	DO (mg/L)	pH	ORP (mV)	Turb. (NTU)
0800	0		12.72	2.39	0.00	12.14	-273	163
0805	0.5	12.46	12.33	2.33	0.00	12.05	-279	263
0810	1.0	12.42	12.42	3.02	0.00	9.89	-246	442
0815	2.5	12.45	12.95	4.12	0.00	8.14	-280	650
0820	2.2	12.50	13.27	3.62	0.42	7.95	-273	939
0825	2.5	12.50	13.20	3.43	1.40	7.71	-270	631
0830	3	12.50	13.30	3.14	1.10	7.83	-263	283
0835	3.5	12.48	13.21	3.03	1.06	7.86	-263	176
0840	4	12.48	13.24	2.93	0.63	7.52	-256	57
0845	4.5	12.50	13.23	2.90	0.59	7.84	-257	47
0850	5	12.50	13.26	2.83	0.57	7.83	-257	45
0853	5.5	12.50	13.30	2.55	0.53	7.83	-257	43

Notes:

Sample information:

Sample ID: GPEC-MW-333DSample time: 1000Color: clearTurbidity: lowField Filtered YES ☒ NO

Analyses: _____

Filter type: _____

Odor/Shaen/NAPL: HLODuplicate Collected YES ☒ NO

If yes, duplicate ID: _____

Purge water disposal? to ground ☒ drummed

other: _____

Guidance:

- 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

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =

 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$

where r = 1/2 diameter in ft

Stabilization Criteria:

Sp. Cond. +/- 3%

DO +/- 10%

ORP +/- 10 mV

pH +/- 0.1 Std Units

Temp. +/- 3%

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

Project number and name GPEC 0125810-2-1202 Sampling personnel DB Sample date 12/22/15 Well ID GPEC MW-306T

Along Maspath near Employee lot.

Well depth

Stabilized flow rate = flow rate with no further drawdown

10.41 Time: 0930

~ 33'

peristaltic

 2.4 L/min

rate with no further drawdown

Other

Time: 1035

Turb. NTU

Depth to water:

[illegible]

Notes:

Sample ID GPEC MW - 506 I

Sample Time:

Color:

Turbidity:

Field Filtered YES / NO

Analyses:

Filter type:

Odor/Sheen/NAPL

Duplicate Collect: YES, NO

If yes, duplicate ID:

Purge water disposal?

to ground

other:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =

$$3,14 \times (r)^2 \times 7,48 \text{ gal/ft}$$

where $r = 1/2$ diameter in ft

Stabilization Criteria:

Sp. Cond. +/- 3%

DO $\pm 10\%$ ORP ± 10 mV

pH +/- 0.1 Std Units

Temp. $\pm 3\%$

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

Guidance:

- 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

Low-Flow Groundwater Sampling Form

Project number and name: GPEC 0125810-2-1202 Sampling personnel: D.B. Sample date: 12/22/15 Well ID: GPEC 91W-306D

Along Mispeth Near Empire Col

Well diameter

Well measurement point

Roadbox condition

Well screen interval

Well depth

Initial depth to water

Sample Intake depth

Pump type and ID

Stabilized flow rate

Stabilized flow rate = flow rate with no further drawdown

VOCs A260

SVOCs 8270

VPH

EPH

Metals

PCBs₉

Other

Time: (0835) Depth to water:

Sp. Cond. mS/cm

DO mg/L

ORP _____ mV

pH 3.4.

Temp. °C

Turb. _____ NTU

[illegible]

Notes:

Sample ID GREY MW-3061

Sample Time: 0833

Color: clear

Turbidity: 5150

Field Filtered YES / NO Analyses:

Filter type:

Odor/Sheen/NAPL ALO

Duplicate Collected YES/NO MS/MSD ✓

If yes, duplicate ID: _____

Purge water disposal? to ground drummed other:

- 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

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2$ diameter in ft

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

Project number and name

GPEL 125180-2-1202

Low-Flow Groundwater Sampling Form

Sampling personnel

DB

Well location description:

Along Maspeth

Well Construction

Well diameter

2"

Well measurement point

PVC

Roadbox condition

good

Well screen interval

Well depth

37.65

Sampling Information

Initial depth to water

10.86 @ 0925

Sample intake depth

10.81

Time: 0955

Pump type and ID

Peristaltic

Stabilized flow rate

~2L/min

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260

SVOCs 8270

VPH

EPH

Metals

PCBs

Other

Sample date 12/22/15

Well ID

MW-328I

Field values at time of sample collection:

Time:

0955

Depth to water:

20.69

Sp. Cond.

mS/cm

DO

mg/L

ORP

mV

pH

s.u.

Temp.

°C

Turb.

NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +50	aim for <10
10:00	2.5	15.37	25.5	0.29	7.27	-217	344	
10:15	5	14.41	25.4	0.34	7.26	-263	258	
10:30	7.5	14.69	24.5	1.57	7.25	-233	221	
10:30	10	14.65	23.6	1.51	7.25	-288	224	
0935	0	15.7	26.5	0.50	7.15	-260	29	

Sample Information:

Sample ID

GPEL MW-328I

Sample Time:

0955

Color:

to clear

Turbidity:

Low

Field Filtered YES / NO

Analyses:

Filter type:

Odor/Sheen/NAPL

Duplicate Collected YES / NO

If yes, duplicate ID:

Purge water disposal?

to ground

drummed

other:

Guidance:

- 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

Notes:

pumped dry on 12/22/15. Sampled on 12/23/15

GPEC

[illegible]

- 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

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

Low-Flow Groundwater Sampling Form

Project number and name 125180-2-1202 Sampling personnel D.B. Sample date 12/8/15 Well ID GPEC MW-339I

Sampling Information

Initial depth to water 15.44 Time: 1

Sample intake depth ~36'

Pump type and ID Peristaltic

Stabilized flow rate 0.24/min

Stabilized flow rate = flow rate with no further drawdown

- ☐ VOCs 8260
- ☐ SVOCs 8270
- ☐ VPH
- ☐ EPH
- ☐ Metals
- ☐ PCBs
- ☐ Other

Time: 1235/1305 Depth to water: 15.45

Sp. Cond. _____ mS/cm

DO _____ mg/L

ORP _____ mV

pH _____ S.U.

Temp. _____ °C

Turb. _____ NTU

Sample Information:

Sample Time:

Color:

Turbidity:

Field Filtered YES / NO

Analyses:

Filter type:

Odor/Sheen/NAPL

Duplicate Collected YES / ☒ NO

If yes, duplicate ID:

Purge water disposal?

to ground

other:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =

$$3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$$

where $r = 1/2$ diameter in ft

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

Notes: need to run van to keep battery charged b/c battery pack died, engine heat affecting temp. unable to get final IL number before pump died

Time: 10:55/11:15 Depth to water: 21.57

Sp. Cond. _____ mS/cm

DO _____ mg/L

ORP _____ mV

pH _____ s.u.

Temp. _____ °C

Turb. _____ 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

6/15/2011

Project number and name	GPEC 125180-2-		Sampling personnel	1202 10.28 @ 0835 (12/23)		Sample date	12/23/15		Well ID	GPEC MW 3445	
Well location description:	Ball field		Sampling Information	10.29 Time: 1135 (12/23)		Samples Collected	Field values at time of sample collection:				
			Initial depth to water			VOCs 8260	Time: 0945		Depth to water:		
Well Construction	2" PVC		Sample intake depth	-17'		SVOCs 8270	Sp. Cond. _____ mS/cm				
Well diameter	2"		Pump type and ID	Peristaltic		VPH	DO _____ mg/L		10.59 after sample		
Well measurement point	PVC		Stabilized flow rate	0.2 cpm		EPH	ORP _____ mV				
Roadbox condition	good		Stabilized flow rate = flow rate with no further drawdown			Metals	pH _____ s.u.		Sample		
Well screen interval			Expanded field to be done on (12/23)			PCBs	Temp. _____ °C				
Well depth	20.31					Other	Turb. _____ NTU				

[illegible]

Notes: Pumped dry on 12/22/15. Poor Recharge
sampled on 12/23/15.

Sample ID: SPC MW-3445

Sample Time: 0845

Color: clear

Turbidity: Slight

Field Filtered YES / NO Analyses: _____

Filter type: NONE

Odor/Sheen/NAPL NONE

Duplicate Collected YES / NO _____

If yes, duplicate ID: _____

Purge water disposal? to ground drummed

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

Stabilization Criteria:
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, add data).
- 5 For VPH and VOC samples, if stabilization flow rate is less than 200 ml/min, contact PM

[illegible][illegible]

Notes: Pumped DRY ON 12/23/15. Purified first 2L to bucket ON 12/23/15 prior to sampling. 5 For VPH and VOC samples, if stabilization flow rate is not specified, use 1.0 L/min.

Sample ID: CPEC MW-344

Sample Time: 3:40

Color: clear

Turbidity: 0.2

Field Filtered YES / NO: NO Analyses: —

Filter type: —

Odor/Sheen/NAPL: none

Duplicate Collected YES / NO: NO

If yes, duplicate ID: —

Purge water disposal? to ground drummed

Diam. (In)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

Stabilization Criteria:

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

Guidance:

- 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

Low-Flow Groundwater Sampling Form

Project number and name: GPEC Phase 2/3 RI Additional Investigation Sampling personnel: G. Holmes Sample date: 3/24/17 Well ID: GPEC-MW1D

Well location description: Along bulkhead near salt water pump house

Well Construction: 2"

Well diameter: 2"

Well measurement point: Top of casing

Roadbox condition: Good

Well screen interval: 60-70

Well depth: 70.73

Sampling Information

Initial depth to water: 6.83 Time: 12:29

Sample intake depth: 65'

Pump type and ID: OED MP-50 Bladder Pump

Stabilized flow rate: 0.4 L/min

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260 ☒

SVOCs 8270 ☒

VPH ☐

EPH ☐

Metals ☒

PCBs ☒

Other ☒

Field values at time of sample collection:

Time: 1355 Depth to water: 7.15

Sp. Cond. 1.96 mS/cm

DO 0.37 mg/L

ORP -194 mV

pH 7.11 s.u.

Temp. 13.17 °C

Turb. 10.6 NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10
1235	0		12.22	1.36	9.90	7.25	-203	516
1240	2		12.99	1.81	2.13	7.20	-206	483
1245	4	6.91	12.97	1.84	1.53	7.17	-206	417
1250	6		13.12	1.88	1.15	7.15	-207	346
1255	8		13.23	1.91	0.95	7.13	-206	235
1300	10		13.20	1.92	0.75	7.12	-209	138
1305	12	6.97	13.05	1.92	0.68	7.12	-209	97.5
1310	14		13.06	1.93	0.60	7.11	-198	64.9
1315	16		13.22	1.94	0.53	7.11	-202	46.2
1320	18		13.13	1.93	0.48	7.11	-201	24.0
1325	20		13.10	1.95	0.45	7.11	-200	24.2
1330	22	7.08	12.99	1.95	0.44	7.11	-199	21.5
1335	24		13.07	1.96	0.41	7.11	-198	16.4
1340	26		13.07	1.96	0.40	7.11	-196	11.2
1345	28	7.14	13.14	1.96	0.38	7.11	-195	11.4
1350	30		13.17	1.96	0.37	7.11	-194	10.6

Sample Information:

Sample ID: GPEC-MW1D

Sample Time: 1355

Color: clear

Turbidity: Low

Field Filtered YES / NO

Analyses:

Filter type:

Odor/Sheen/NAPL

slight nlo

Duplicate Collected YES / NO

If yes, duplicate ID:

Purge water disposal?

to ground

drummed

other: fracture

Well Volume Conversion:

Diam. (in) Factor (gal/ft)

1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =

$3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$

where r = 1/2 diameter in ft

Stabilization Criteria:

Sp. Cond. +/- 3%

DO +/- 10%

ORP +/- 10 mV

pH +/- 0.1 Std Units

Temp. +/- 3%

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

Guidance:

- 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

Notes:

Low-Flow Groundwater Sampling Form

Project number and name: GPEC 21 Phase 2/3 Additional Investigation Sampling personnel: G. Holmes Sample date: 3/20/17 Well ID: MWS-2D

Well location description: NW corner of site

Well Construction: 2"

Well measurement point: Top of casing

Roadbox condition: Good

Well screen interval: 130'-150'

Well depth: 153.03

Sampling Information: Initial depth to water: 59.13 Time: 1344 Sample intake depth: 140' Pump type and ID: QED MP-50 Bladder Stabilized flowrate: 0.25 L Stabilized flowrate = flow rate with no further drawdown

Samples Collected: VOCs 8260 ☐ SVOCs 8270 ☐ VPH ☐ EPH ☐ Metals ☐ PCBs ☐ Other ☐

Field values at time of sample collection: Time: _____ Depth to water: 59.00 Sp. Cond. _____ mS/cm DO _____ mg/L ORP _____ mV pH _____ s.u. Temp. _____ °C Turb. _____ NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +50	aim for <10
1350	0		13.89	1.71	6.81	8.53	-225	158
1355	1.25		14.09	1.71	4.21	8.53	-235	116
1400	2.50		14.45	1.71	2.34	8.51	-241	75.3
1405	3.75		15.03	1.70	3.88	8.59	-189	71.9
1410	5.00	59.08	15.24	1.75	4.78	8.19	-185	67.5
1415	6.25		15.43	3.21	4.32	7.48	-134	58.8
1420	7.50		15.38	4.48	2.78	7.18	-125	50.3
1425	8.75		15.46	5.17	2.04	7.08	-126	49.5
1430	10.00	59.05	15.70	5.66	1.68	7.03	-127	45.2
1435	11.25		16.08	5.97	1.22	7.02	-134	36.7
1440	12.50		16.26	6.07	1.02	7.01	-136	34.6
1445	13.75		16.43	6.17	0.91	7.00	-137	34.7
1450	15.00	59.01	16.60	6.51	0.83	6.98	-136	31.3
1455	16.25		16.78	6.91	0.77	6.95	-134	27.5
1500	17.50		16.84	7.13	0.73	6.94	-133	26.6
1505	18.75		16.91	7.25	0.71	6.93	-132	26.4
1510	20.00	59.00	16.93	7.34	0.70	6.92	-131	25.7

Sample Information:

Sample ID: _____

Sample Time: _____

Color: clear

Turbidity: low

Field Filtered YES / NO: _____ Analyses: _____

Filter type: _____

Odor/Sheen/NAPL: sulfur/organic odor

Duplicate Collected YES / NO: _____

If yes, duplicate ID: _____

Purge water disposal? to ground ☐ drummed ☐ other: fractank

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

Stabilization Criteria:

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

Guidance:

- 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

Notes:

Low-Flow Groundwater Sampling Form

Project number and name: GPEC R1 Phase 2/3 Additional Sampling personnel: G. Holmar Sample date: 3/20/17 Well ID: GPEC-MW2DZ

Well location description: NE corner of LNB Investigation: Investigation

Well Construction: 2"

Well diameter: 2"

Well measurement point: Top of casing

Roadbox condition: Good

Well screen interval: 100'-120'

Well depth: 118.07

Sampling Information:

Initial depth to water: 6.86 Time: 1101

Sample intake depth: 110'

Pump type and ID: QED MP-50 Bladder

Stabilized flow rate: 0.25 L

Stabilized flow rate = flow rate with no further drawdown

Samples Collected:

VOCs 8260

SVOCs 8270

VPH

EPH

Metals

PCBs

Other

Field values at time of sample collection:

Time: _____

Sp. Cond. _____ mS/cm

DO _____ mg/L

ORP _____ mV

pH _____ s.u.

Temp. _____ °C

Turb. _____ NTU

Depth to water: 6.20

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10
1210	0		9.87	2.66	17.19	7.18	-55	80.7
1215	1.25		9.62	2.67	9.94	7.18	-57	59.7
1220	2.50		9.02	2.69	9.12	7.13	-57	49.7
1225	3.75		8.81	2.69	8.77	7.13	-58	34.0
1230	5.00	6.23	8.99	2.62	8.98	7.13	-53	54.7
1235	6.25		9.12	2.41	8.58	7.14	-44	62.8
1240	7.50		9.39	2.30	4.24	7.47	-95	22.9
1245	8.75		9.39	1.95	2.54	7.75	-135	36.2
1250	10.00	6.21	9.84	1.82	1.59	8.14	-192	38.4
1255	11.25		10.33	1.74	1.26	8.35	-218	39.6
1300	12.50		10.44	1.71	1.14	8.42	-230	24.1
1305	13.75		10.37	1.70	1.01	8.48	-244	17.9
1310	15.00	6.22	10.35	1.70	0.94	8.50	-252	16.8
1315	16.25		10.34	1.70	0.88	8.54	-261	15.5
1320	17.50		10.29	1.69	0.85	8.56	-269	14.6
1325	18.75		10.31	1.68	0.81	8.59	-275	14.0
1330	20.00	6.20	10.37	1.68	0.79	8.60	-278	13.7

Notes:

Sample Information:

Sample ID: _____

Sample Time: _____

Color: Cloudy

Turbidity: _____

Field Filtered YES / NO _____ Analyses: _____

Filter type: _____

Odor/Sheen/NAPL: None

Duplicate Collected YES / NO _____

If yes, duplicate ID: _____

Purge water disposal? _____ to ground _____ drummed _____ other: fracture

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2$ diameter in ft

Stabilization Criteria:

Sp. Cond. +/- 3%

DO +/- 10%

ORP +/- 10 mV

pH +/- 0.1 Std Units

Temp. +/- 3%

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

Guidance:

- 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

Low-Flow Groundwater Sampling Form

Project number and name: GPEC R1 Phase 2/3 Additional Investigation Sampling personnel: G. Holmes Sample date: 3/20/17 Well ID: GPEC-MW4D

Well location description: SE corner of primary d/dle Tank 1 in LNB

Well Construction

Well diameter: 2"

Well measurement point: Top of Casing

Roadbox condition: Good

Well screen interval: 90-100

Well depth: 103.32

Sampling Information

Initial depth to water: 7.95 Time: 0827

Sample intake depth: 95'

Pump type and ID: QED MP-50 Bladder

Stabilized flow rate: 0.25 L

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8250: ☒

SVOCs 8270: ☒

VPH: ☐

EP-I: ☐

Metals: ☒

PCBs: ☒

Other: ☐

Field values at time of sample collection:

Time: 1030 Depth to water: 7.96

Sp. Cond.: 2.70 mS/cm

DO: 1.84 mg/L

ORP: -116 mV

pH: 7.13 s.u.

Temp.: 9.02 °C

Turb.: 31.6 NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	CRP (mV)	Turb. (NTU)	Salinity
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10	
0900	0		7.50	2.11	11.69	6.92	76	147	1.1
0905	1.25		5.78	1.26	10.27	7.52	-104	79.4	0.6
0910	2.50		6.01	1.32	8.78	7.25	-109	466	0.7
0915	3.75		5.97	2.17	6.51	7.14	-104	838	1.1
0920	5.00	7.95	6.25	2.39	5.66	7.14	-101	970	1.2
0925	6.25		6.31	2.54	4.79	7.15	-98	825	1.3
0930	7.50		6.44	2.61	4.48	7.14	-105	385	1.3
0935	8.75		6.71	2.64	3.29	7.14	-111	261	1.3
0940	10.00	7.93	6.73	2.67	2.92	7.15	-116	179	1.3
0945	11.25		6.79	2.68	2.76	7.15	-119	157	1.3
0950	12.50		7.22	2.67	2.45	7.15	-120	136	1.3
0955	13.75		7.34	2.68	2.38	7.14	-121	120	1.4
1000	15.00	7.85	7.63	2.68	2.20	7.13	-122	83.6	1.4
1005	16.25		8.09	2.69	2.06	7.13	-121	64.3	1.4
1010	17.50		8.20	2.70	1.99	7.13	-120	47.7	1.4
1015	18.75		8.81	2.70	1.87	7.10	-116	33.8	1.4
1020	20.00	7.95	8.91	2.70	1.91	7.10	-117	32.3	1.4
1025	21.25		9.02	2.70	1.84	7.13	-116	31.6	1.4

Sample Information:

Sample ID: GPEC-MW4D

Sample Time: 1030

Color: clear

Turbidity: Low

Field Filtered YES / NO: Analyses:

Filter type: None

Odor/Shear/MLAPL: None

Duplicate Collected YES / NO: NO

If yes, duplicate ID: NA

Purge water disposal? to ground drummed other: free tank

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2$ diameter in ft

Stabilization Criteria:

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

Guidance:

- 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

Notes:

Low-Flow Groundwater Sampling Form

Project number and name GPEC RI Phase 2/3 Additional Sampling personnel George Holmes Sample date 3/16/17 Well ID GPEC-MW 5D2

Well location description NE corner of Tank 1 in LNG

Well Construction 2"

Well diameter 2"

Well measurement point Top of Casing

Roadbox condition Stuck up - Good

Well screen interval 150 - 170

Well depth 166.50

Investigation

Sampling Information

Initial depth to water 10.90 Time: 0813

Sample intake depth 160

Pump type and ID QED MP-50 Bladder Pump

Stabilized flow rate 0.25 L

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260

SVOCs 8270

VPH

EPH

Metals

PCBs

Other

Field values at time of sample collection:

Time: _____ Depth to water: 28.08

Sp. Cond. _____ mS/cm

DO _____ mg/L

ORP _____ mV

pH _____ s.u.

Temp. _____ °C

Turb. _____ NTU

Cumulative Time (min.)	Volume (gall) L	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Salinity ppt
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10	
1055	0		6.24	2.16	2.18	6.21	-350	6.91	1.1
1100	1.25		6.55	2.14	7.79	8.66	-301	544	1.1
1105	2.50		5.59	2.17	7.47	8.72	-229	474	1.1
1110	3.75		5.59	2.19	7.29	8.75	-216	201	1.1
1115	5.00		5.78	2.26	7.11	8.76	-206	82.5	1.1
1120	6.25		6.13	2.26	7.02	8.76	-219	85.0	1.1
1125	7.50		6.66	2.24	6.95	8.77	-239	77.7	1.1
1130	8.75		6.76	2.23	6.81	8.77	-262	68.6	1.1
1135	10.00		6.95	2.22	6.29	8.77	-281	70.7	1.1
1140	11.25		6.57	2.21	5.87	8.78	-294	114	1.1
1145	12.50		6.70	2.23	5.49	8.77	-297	134	1.1
1150	13.75	21.87	7.29	2.22	5.24	8.77	-300	144	1.1
1155	15.00		7.39	2.21	5.09	8.78	-301	208	1.1
1200	16.25		6.95	2.20	4.96	8.78	-302	253	1.1
1205	17.50		6.93	2.21	4.56	8.78	-304	286	1.1
1210	18.75		7.86	2.23	4.13	8.77	-308	347	1.1
1215	20.00		8.03	2.19	3.84	8.77	-310	444	1.1
1220	21.25	26.08	7.70	2.20	3.66	8.76	-309	403	1.1
1225	22.50		8.25	2.21	3.37	8.75	-310	438	1.1
1230	23.75		8.51	2.20	3.04	8.73	-313	440	1.1
1235	25.00		8.45	2.19	2.91	8.72	-309	460	1.1
1240	26.25	28.08	8.38	2.18	2.81	8.72	-309	469	1.1

Sample Information:

Sample ID GPEC-MW 5D2

Sample Time: _____

Color: Cloudy

Turbidity: _____

Field Filtered YES / NO _____ Analyses: _____

Filter type: _____

Odor/Sheen/NAPL Sulfur Like odor

Duplicate Collected YES / NO _____

If yes, duplicate ID: _____

Purge water disposal? _____ to ground _____ drummed _____ other: fracture

Well Volume Conversion:

Diam. (in) Factor (gal/ft)

1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =

$3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$

where $r = 1/2$ diameter in ft

Stabilization Criteria:

Sp. Cond. +/- 3%

DO +/- 10%

ORP +/- 10 mV

pH +/- 0.1 Std Units

Temp. +/- 3%

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

Guidance:

- 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

Notes:

Low-Flow Groundwater Sampling Form

Project number and name 1610913-1.2 Sampling personnel G. Holmer Sample date 3/21/17 Well ID GPEC-6T01S

Well Construction	
Well diameter	2"
Well measurement point	Top of casing
Roadbox condition	Good
Well screen interval	5'-15'
Well depth	15.03

Initial depth to water 4.92 Time: 1249
 Sample intake depth 10'
 Pump type and ID QED MP-50 Bladder Pump
 Stabilized flow rate 0.4 L/min
 Stabilized flow rate = flow rate with no further drawdown

VOCs 8230	X
SVOCs 8270	f
VPH	
EPH	
Metals	f
PCBs	f
Other	

Time:	<u>1410</u>	Depth to water:	<u>7.67</u>
Sp. Cond.	<u>0.554</u> mS/cm		
DO	<u>0.42</u> mg/L		
ORP	<u>-148</u> mV		
pH	<u>7.39</u> s.u.		
Temp.	<u>12.71</u> °C		
Turb.	<u>36.4</u> NTU		

[illegible]

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PP

Sample ID GPEC-GT01 S

Sample Time: 1410

Color: slightly cloudy

Turbidity: low

Field Filtered YES / (NO) Analyses: _____

Filter type: _____

Odor/Sheen/NAPL Slight PLO

Duplicate Collected YES / (NO)

If yes, duplicate ID: _____

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

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

Notes:

- 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 YOC samples, if stabilization flow rate is less than 200 ml/min, contact PM

Low-Flow Groundwater Sampling Form

Project number and name 1610913-1.2 Sampling personnel G. Holmes Sample date 3/21/17 Well ID GPEC-GT 5I

Well Construction	
Well diameter	2"
Well measurement point	Top of casing
Roadbox condition	Good
Well screen interval	30' - 40'
Well depth	39.96

Initial depth to water 10.60 Time: 0936
 Sample intake depth 35'
 Pump type and ID QCD MP-50 Bladder Pump
 Stabilized flow rate 0.4 L/min
 Stabilized flow rate = f/w rate with no further drawdown

MS/MSD

VOCs 8260	X
SVOCs 8270	X
VPH	
EPH	
Metals	X
PCBs	X
Other <i>MNA</i>	X

Time:	<u>1105</u>	Depth to water:	
Sp.C cond.	<u>2.11</u> mS/cm		<u>10.66</u>
DO	<u>0.42</u> mg/L		
CRP	<u>-154</u> mV		
pH	<u>7.09</u> s.u.		
Temp.	<u>15.70</u> °C		
Turb.	<u>3.6</u> NTU		

[illegible]

Sample Information:

1
Sample ID GPEC-GT 5I (MS/MSD)

Sample Time: 1105

Color Clear

Turbidity: Low

Field Filtered YES / NO Analyses: _____

Filter type: NA

Odor/Sheen/NAFL NLO

Duplicate Collected YES / NO

If yes, duplicate ID: _____

Purge water disposal? _____ to ground _____ drummed _____

Well Volume Conversion:	
Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

Stabilization Criteria:

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

Guidance:

- 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

Low-Flow Groundwater Sampling Form

Project number and name GPEC R1 Phase 2/3 Additional Investigation Sampling personnel G. Holmes Sample date 3/21/17 Well ID GPEC-GT5D

Well location description: Side of Employer parking lot in center

Well Construction

Well diameter 2"

Well measurement point Top of Casing

Roadbox condition Good

Well screen interval 157 - 177

Well depth 176.95

Sampling Information

Initial depth to water 13.59 Time: 0730

Sample intake depth 167

Pump type and ID QED MP-50 Bladder Pump

Stabilized flow rate 0.25 L

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 626C

SVOCs 627D

VPH

EPH

Metals

PCBs

Other

Field values at time of sample collection:

Time: _____

Sp. Cond. _____ mS/cm

DO _____ mg/L

ORP _____ mV

pH _____ s.u.

Temp. _____ °C

Turb. _____ NTU

Depth to water: 37.84

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Salinity
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10	
0750	0		8.36	4.67	7.00	6.51	-39	54.2	1.0
0755	1.25		8.12	2.04	3.79	6.86	-43	63.8	1.0
0800	2.50		9.38	1.95	7.14	7.33	-28	20.8	1.0
0805	3.75		9.35	1.99	7.20	7.35	-24	12.8	1.0
0810	5.00	17.91	9.39	2.01	7.26	7.38	-28	10.2	1.0
0815	6.25		9.45	1.97	7.55	7.50	-11	5.5	1.0
0820	7.50		9.64	1.97	4.11	7.63	-60	15.8	1.0
0825	8.75		9.79	2.01	2.72	7.59	-100	11.7	1.0
0830	10.00	21.16	10.31	2.08	3.01	7.48	-119	11.6	1.0
0835	11.25		10.63	2.16	2.70	7.40	-133	9.0	1.1
0840	12.50		10.92	2.20	2.37	7.37	-140	9.8	1.1
0845	13.75		11.97	2.23	2.17	7.36	-149	12.1	1.1
0850	15.00	26.57	12.56	2.22	3.98	7.35	-116	15.2	1.1
0855	16.25		14.08	2.18	3.37	7.47	-94	8.9	1.1
0900	17.50		14.20	2.10	7.25	7.51	-92	7.5	1.1
0905	18.75		15.22	1.96	7.14	7.59	-80	6.2	1.0
0910	20.00	35.77	15.59	1.95	7.11	7.61	-72	6.5	1.0
0915	21.25	37.84	15.61	1.94	6.97	7.62	-70	6.8	1.0

Sample Information:

Sample ID: _____

Sample Time: _____

Color: clear

Turbidity: low

Field Filtered YES / NO _____ Analyses: _____

Filter type: _____

Odor/Sheen/LAPL None

Duplicate Collected YES / NO _____

If yes, duplicate ID: _____

Purge water disposal? to ground drummed other: fracture

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
3.14 x (r)² x 7.48 gal/ft
where r = 1/2 diameter in ft

Stabilization Criteria:

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

Guidance:

- 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

Notes:

Low-Flow Groundwater Sampling Form

Project number and name GPEC R1 Phase 2/3 Additional Sampling personnel G. Holmes Sample date 3/24/17 Well ID GPEC-MW332I

Well location description: SE side of Investigation

Holder Pod # 1

Well Construction

Well diameter 2"

Well measurement point Top of Casing

Roadbox condition Good

Well screen interval 35-45

Well depth 47.43

Sampling Information

Initial depth to water 15.26 Time: 0737

Sample intake depth 40'

Pump type and ID QED MP-50 Bladder Pump VPH

Stabilized flow rate 0.4 L/min 0.25 L/min @ 0815

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260 ☒

SVOCs 8270 ☒

EPH ☒

Metals ☒

PCBs ☒

Other ☐

Field values at time of sample collection:

Time: 0910

Depth to water: 38.50

Sp. Cond. 22.7 mS/cm

DO 0.42 mg/L

ORP -405 mV

pH 7.18 s.u.

Temp. 12.61 °C

Turb. 86.4 NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values								
0755	0		12.35	22.3	3.79	6.97	-171	647
0800	2		12.61	24.7	1.72	6.92	-204	630
0805	4	19.04	12.65	22.1	1.43	6.97	-242	362
0810	6		12.50	20.8	1.10	7.14	-354	102
0815	8	21.89	12.48	20.9	0.91	7.21	-368	83.5
0820	10.23		12.38	21.0	0.82	7.22	-377	80.1
0825	12.05	26.95	12.24	21.0	0.72	7.23	-379	81.3
0830	14.18		11.49	22.5	0.66	7.20	-373	101
0835	16.13	31.42	12.40	21.7	0.61	7.20	-394	76.0
0840	18.12		12.40	21.7	0.56	7.21	-397	82.9
0845	19.50	33.67	12.45	22.1	0.52	7.19	-400	88.8
0850	21.75		12.52	22.3	0.49	7.19	-403	90.7
0855	24.00	36.95	12.67	22.7	0.46	7.18	-406	90.6
0900	26.25		12.52	22.8	0.43	7.18	-408	92.4
0905	28.50		12.61	22.7	0.42	7.18	-405	86.4

Sample Information:

Sample ID GPEC-MW332I

Sample Time: 0910

Color: black tint

Turbidity:

Field Filtered YES / NO Analyses:

Filter type:

Odor/Sheen/NAPL strong OLO

Duplicate Collected YES / NO ☒

If yes, duplicate ID:

Purge water disposal? to ground drummed other: faucet

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.15
4	0.65
6	1.50

well volume =

$3.14 \times (r)^2 \times 7.48$ gal/ft

where r = 1/2 diameter in ft

Stabilization Criteria:

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

Guidance:

- 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

Notes: slowed down pumping rate @ 0815 but water level continues to drop

Low-Flow Groundwater Sampling Form

Project number and name GPEC R1 Phase 2/3 Additional Investigation Sampling personnel G. Holmes Sample date 3/24/17 Well ID GPEC-MW403

Well location description: Along bulkhead near saltwater pump house

Well Construction

Well diameter 2"

Well measurement point Top of casing

Roadbox condition Good

Well screen interval 33.5-43.5

Well depth 42.85

Sampling Information

Initial depth to water 7.15 Time: 1440

Sample intake depth 38.5'

Pump type and ID QED MP-50 Bladder Pump

Stabilized flow rate 0.4 L/min

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260 ☒

SVOCs 8270 ☒

VPH ☐

EPH ☐

Metals ☒

PCBs ☒

Other ☐

Field values at time of sample collection:

Time: 1600

Depth to water: 6.90

Sp. Cond. 1.40 mS/cm

DO 0.50 mg/L

ORP -154 mV

pH 7.06 s.u.

Temp. 14.93 °C

Turb. 2.5 NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +50	aim for <10
1450	0		11.58	1.07	9.60	7.36	-126	164
1455	2		13.44	1.43	1.90	7.07	-138	168
1500	4	7.06	13.88	1.43	1.01	7.06	-149	78.4
1505	6		13.96	1.43	0.83	7.06	-152	50.8
1510	8		14.10	1.42	0.71	7.06	-154	33.3
1515	10	7.01	14.34	1.41	0.66	7.06	-154	24.1
1520	12		14.43	1.41	0.63	7.06	-154	16.1
1525	14		14.81	1.40	0.61	7.04	-153	10.2
1530	16	6.96	14.91	1.40	0.56	7.05	-154	8.8
1535	18		14.87	1.40	0.55	7.05	-153	6.8
1540	20		14.89	1.40	0.53	7.06	-153	5.6
1545	22		14.85	1.40	0.52	7.05	-154	4.1
1550	24		14.91	1.40	0.51	7.05	-154	3.2
1555	26	6.90	14.93	1.40	0.50	7.06	-154	2.5

Sample Information:

Sample ID GPEC-MW403

Sample Time: 1600

Color: clear

Turbidity: low

Field Filtered YES / NO

Analyses: _____

Filter type: _____

Odor/Sheen/NAPL NLO

Duplicate Collected YES / NO

If yes, duplicate ID: _____

Purge water disposal?

to ground

drummed

other: fractank

Well Volume Conversion:

Diam. (in) Factor (gal/ft)

1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =

$3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$

where r = 1.2 diameter in ft

Stabilization Criteria:

Sp. Cond. +/- 3%

DO +/- 10%

ORP +/- 10 mV

pH +/- 0.1 Std Units

Temp. +/- 3%

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

Guidance:

- 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

Notes:

Project number and name	GPEC RI Phase 2/3 Additional	Sampling personnel	G. Holmes	Sample date	3/28/17	Well ID	GPEC-MW404
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Well Construction	
Well diameter	2"
Well measurement point	Top of casing
Roadbox condition	Good
Well screen interval	35-45
Well depth	44.89

Sampling Information		Samples Collected
Initial depth to water	<u>6.35</u> Time: <u>0718</u>	VOCs 8260
Sample intake depth	<u>40'</u>	SVOCs 8270
Pump type and ID	<u>QED MP-50 Bladder Pump</u>	VPH
Stabilized flow rate	<u>0.5 L/min</u>	EPH
Stabilized flow rate = flow rate with no further drawdown		Metals
		PCBs
		Other

Time:	<u>0835</u>	Depth to water:	<u>6.35</u>
Sp. Cond.	<u>1.51</u>	mS/cm	
DO	<u>1.41</u>	mg/L	
ORP	<u>-133</u>	mV	
pH	<u>7.30</u>	s.u.	
Temp.	<u>12.49</u>	°C	
Turb.	<u>5.6</u>	NTU	

[illegible]

Salinity Sample Information:

Sample ID: GPEC-MW404

Sample Time: 0835

Color: clear

Turbidity: Low

Field Filtered YES / NO: _____ Analyses: _____

Filter type: _____

Odor/Sheen/NAPL: slight n/o

Duplicate Collected YES / NO: _____

If yes, duplicate ID: _____

Purge water disposal? _____ to ground _____ drummed

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

Stabilization Criteria:
 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

Low-Flow Groundwater Sampling Form

Project number and name GPEC R1 Phase 2/3 Additional Investigation Sampling personnel G. Holmes Sample date 3/28/17 Well ID GPEC-MW405

Well location description: Along Bulkhead to E of stores bldg

Well Construction

Well diameter 2"

Well measurement point Top of casing

Roadbox condition Good

Well screen interval 40-50

Well depth 49.46

Sampling Information

Initial depth to water 6.46 Time: 0856

Sample intake depth 45'

Pump type and ID QED MP-50 Bladder Pump

Stabilized flow rate 0.4 L/min

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260 ☒

SVOCs 8270 ☒

VPH ☐

EPH ☐

Metals ☒

PCBs ☒

Other ☐

Field values at time of sample collection:

Time: 1025

Depth to water: 6.31

Sp. Cond. 2.07 mS/cm

DO 0.58 mg/L

ORP -178 mV

pH 7.27 s.u.

Temp. 13.18 °C

Turb. 21.3 NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Salinity PPT
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +50	aim for <10	
0700	0		12.67	2.38	9.09	7.34	-202	71.000	1.2
0705	2	6.38	12.77	2.19	2.28	7.29	-190	964	1.1
0710	4		12.86	2.14	1.78	7.28	-178	462	1.1
0715	6		12.98	2.09	1.34	7.26	-171	179	1.1
0720	8		12.97	2.06	1.29	7.27	-166	78.1	1.0
0725	10	6.28	13.11	2.06	1.23	7.26	-166	62.0	1.0
0730	12		13.07	2.06	1.19	7.27	-166	53.8	1.0
0735	14		13.09	2.05	1.30	7.26	-162	38.1	1.0
0740	16	6.25	13.17	2.05	1.18	7.26	-164	32.2	1.0
0745	18		13.14	2.05	1.03	7.25	-166	26.9	1.0
0750	20		13.15	2.08	0.90	7.26	-170	22.0	1.1
0755	22		13.17	2.08	0.78	7.26	-174	24.6	1.1
1000	24	6.29	13.17	2.08	0.70	7.27	-175	36.2	1.1
1005	26		13.09	2.08	0.66	7.27	-175	38.7	1.1
1010	28		13.13	2.07	0.63	7.27	-176	21.4	1.1
1015	30		13.17	2.07	0.60	7.27	-177	22.9	1.0
1020	32		13.18	2.07	0.58	7.27	-178	21.3	1.1

Sample Information:

Sample ID GPEC-MW405

Sample Time: 1025

Color: clear

Turbidity: Low

Field Filtered YES / NO Analyses:

Filter type: NLO

Odor/Sheen/NAPL NLO

Duplicate Collected YES / NO

If yes, duplicate ID:

Purge water disposal? to ground drummed other: frac Tank

Well Volume Conversion:

Diam. (in) Factor (gal/ft)

1 0.04

1.5 0.09

2 0.16

4 0.65

6 1.50

well volume =

$3.14 \times (r)^2 \times 7.48$ gal/ft

where r = 1/2 diameter in ft

Stabilization Criteria:

Sp. Cond. +/- 3%

DO +/- 10%

ORP +/- 10 mV

pH +/- 0.1 Std Units

Temp. +/- 3%

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

Notes:

Guidance:

- 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

Project number and name GPEC Phase 2/3 (2) Additional Sampling personnel G. Holmes Sample date 3/27/17 Well ID GPEC-MW406

Well Construction	
Well diameter	2"
Well measurement point	Top of casing
Roadbox condition	Good
Well screen interval	55-60
Well depth	59.10

Sampling Information		Samples Collected
Initial depth to water	<u>5.02</u> Time: <u>0738</u>	VOCs 8260
Sample intake depth	<u>57.5'</u>	SVOCs 8270
Pump type and ID	<u>QED MP-50 Bladder Pump</u>	VPH
Stabilized flow rate	<u>0.56/min</u>	EPH
Stabilized flow rate = flow rate with no further drawdown		Metals

- ☐ VOCs 8260
- ☐ SVOCs 8270
- ☐ VPH
- ☐ EPH
- ☐ Metals
- ☐ PCBs
- ☐ Other

Time:	<u>0840</u>	Depth to water:	
Sp. Cond.	<u>2.31</u> mS/cm		<u>4.94</u>
DO	<u>1.48</u> mg/L		
ORP	<u>-123</u> mV		
pH	<u>7.14</u> s.u.		
Temp.	<u>11.59</u> °C		
Turb.	<u>0.0</u> NTU		

[illegible]

Notes:

Sample ID GPEC-MW406

Sample Time: 0840

Color: clear

Turbidity: None

Field Filtered YES / NO Analyses: _____

Filter type: _____

Odor/Sheen/NAPL NLO

Duplicate Collected YES / NO

If yes, duplicate ID: _____

Purge water disposal? to ground drummed

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

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

Low-Flow Groundwater Sampling Form

Project number and name GPEC R1 Phase 2/3 Additional Sampling personnel G. Holmes Sample date 3/27/17 Well ID GPEC-MW407

Well location description: Along bulkhead to E of storage yard Investigation

Well Construction

Well diameter 2"Well measurement point Top of casingRoadbox condition GoodWell screen interval 60-70Well depth 69.61

Sampling Information

Initial depth to water 5.07 Time: 0918Sample intake depth 65'Pump type and ID QED MP-50 Bladder PumpStabilized flow rate 0.46/min

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260 ☒SVOCs 8270 ☒VPH ☐EPH ☐Metals ☒PCBs ☒Other ☐

Field values at time of sample collection:

Time: 1045Depth to water: 5.01Sp. Cond. 2.62 mS/cmDO 1.28 mg/LORP -141 mVpH 7.32 s.u.Temp. 10.12 °CTurb. 3.3 NTU

Cumulative Time (min.)	Volume (gal) ²	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10
0925	0		8.68	2.49	14.23	7.42	-131	424
0930	2		9.12	2.80	2.40	7.39	-153	324
0935	4		9.36	2.76	1.74	7.39	-155	175
0940	6	5.13	9.50	2.75	1.38	7.40	-151	102
0945	8		9.54	2.70	1.60	7.42	-148	60.8
0950	10		9.96	2.69	1.48	7.37	-148	41.7
0955	12		9.74	2.68	1.38	7.36	-146	32.7
1000	14	5.21	10.00	2.67	1.40	7.36	-145	24.2
1005	16		10.03	2.68	1.22	7.37	-146	17.9
1010	18		10.01	2.67	1.19	7.38	-147	13.1
1015	20		9.96	2.67	1.19	7.37	-146	10.9
1020	22	5.11	10.08	2.66	1.20	7.37	-145	7.9
1025	24		10.07	2.66	1.25	7.37	-145	6.4
1030	26		10.02	2.65	1.27	7.36	-144	4.7
1035	28		10.08	2.65	1.24	7.36	-143	4.3
1040	30		10.12	2.62	1.28	7.32	-141	3.3

Sample Information:

Sample ID GPEC-MW407Sample Time: 1045Color: clearTurbidity: low

Field Filtered YES / NO

Analyses: _____

Filter type: _____

Odor/Sheen/NAPL NLO

Duplicate Collected YES / NO

If yes, duplicate ID: _____

Purge water disposal?

to ground

drummed

other:

Free Tank

Well Volume Conversion:

Diam. (in) Factor (gal/ft)

1 0.04

1.5 0.09

2 0.16

4 0.65

6 1.50

well volume =

 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$

where r = 1/2 diameter in ft

Stabilization Criteria:

Sp. Cond. +/- 3%

DO +/- 10%

ORP +/- 10 mV

pH +/- 0.1 Std Units

Temp. +/- 3%

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

Notes:

Guidance:

- 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

Low-Flow Groundwater Sampling Form

Project number and name GPEC 121 Phase 2/3 Addition Sampling personnel G. Holmes Sample date 3/27/17 Well ID GPEC-MW408

Well location description: Along bulkhead to E of storage yard Investigation Sampling Information
 Well Construction 2" Initial depth to water 5.38 Time: 1143 Samples Collected
 Well diameter 2" Sample intake depth 40 VOCs 8260 ☒
 Well measurement point Top of casing Pump type and ID QED MP-50 Bladder Pump SVOCs 8270 ☒
 Roadbox condition Good Stabilized flow rate 0.54/min VPH ☐
 Well screen interval 35-45 Stabilized flow rate = flow rate with no further drawdown EPH ☒
 Well depth 44.00 Metals ☒
 PCBs ☒
 Other ☐

Field values at time of sample collection:
 Time: 1345 Depth to water: 5.77
 Sp. Cond. 1.15 mS/cm
 DO 0.45 mg/L
 ORP -161 mV
 pH 7.59 s.u.
 Temp. 12.97 °C
 Turb. 0.0 NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Salinity (ppt)
Typical Groundwater Values									
1150	0		9.45	4.78	11.58	7.42	-97	300	2.7
1155	2.50		11.07	5.96	2.19	7.49	-147	227	3.2
1200	5.00	5.47	11.17	5.89	1.66	7.50	-151	155	3.2
1205	7.50		11.52	5.75	1.15	7.49	-155	61.4	3.1
1210	10.00		12.13	5.58	0.91	7.47	-157	13.4	3.0
1215	12.50	5.55	12.08	5.49	0.81	7.47	-158	2.7	2.9
1220	15.00		12.22	5.38	0.78	7.47	-158	0.0	2.9
1225	17.50		12.59	5.19	0.71	7.46	-158	0.0	2.8
1230	20.00	5.60	12.78	4.97	0.69	7.46	-157	0.0	2.6
1235	22.50		12.81	4.61	0.61	7.45	-157	0.0	2.5
1240	25.00		12.82	4.25	0.60	7.45	-157	0.0	2.2
1245	27.50		12.71	3.70	0.56	7.46	-156	0.0	1.9
1250	30.00	5.71	12.85	3.24	0.54	7.48	-157	0.0	1.7
1255	32.50		12.79	2.88	0.55	7.50	-158	0.0	1.5
1300	35.00		12.91	2.43	0.51	7.52	-159	0.0	1.2
1305	37.50	5.80	12.94	1.88	0.50	7.55	-161	0.0	0.9
1310	40.00		12.91	1.63	0.49	7.57	-161	0.0	0.8
1315	42.50		12.97	1.50	0.48	7.58	-160	0.0	0.8
1320	45.00		12.99	1.36	0.48	7.58	-161	0.0	0.7
1325	47.50	5.79	12.87	1.21	0.47	7.59	-160	0.0	0.6
1330	50.00		12.88	1.17	0.47	7.55	-161	0.0	0.6
1335	52.50		12.95	1.16	0.46	7.58	-160	0.0	0.6
1340	55.00		12.97	1.15	0.45	7.59	-161	0.0	0.6

Sample Information:

Sample ID GPEC-MW408
 Sample Time: 1345
 Color: clear
 Turbidity: none
 Field Filtered YES / NO ☐ Analyses: ☐
 Filter type: ☐
 Odor/Sheen/NAPL NLO
 Duplicate Collected YES / NO ☐
 If yes, duplicate ID: ☐
 Purge water disposal? ☐ to ground ☐ drummed ☒ other: Frac Tank

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2$ diameter in ft

Stabilization Criteria:

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

Guidance:

- 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

Notes:

Project number and name GPEC Phase 2/3 RI Additional Sampling personnel G. Holmes Sample date 3/24/17 Well ID GPEC-MW409

Well depth 44.53

Stabilized flow rate = flow rate with no further drawdown

Other

Turb. 0.0 NTU

5.86

Notes:

Other: Free-Trade

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

Project number and name GPEC R1 Phase 2/3 Additional Sampling personnel G. Holme Sample date 3/27/17 Well ID GPEC-MW410

Well Construction	
Well diameter	2"
Well measurement point	Top of casing
Roadbox condition	Good
Well screen interval	25-35
Well depth	34.53

Investigation -		Samples Collected
Sampling Information		
Initial depth to water	<u>6.58</u> Time: <u>1353</u>	VOCs 8260 ☒
Sample intake depth	<u>30'</u>	SVOCs 8270 ☒
Pump type and ID	<u>QED MP-50 Bladder Pump</u>	VPH ☐
Stabilized flow rate	<u>0.54/min → 0.44/min</u>	EPH ☐
Stabilized flow rate = flow rate with no further drawdown		Metals ☒
		PCBs ☒
		Other ☐

Field values at time of sample collection:

Time:	14.00 15.00	Depth to water:	
Sp. Cond.	19.2 mS/cm		8.41
DO	0.41 mg/L		
ORP	-322 mV		
pH	7.09 s.u.		
Temp.	13.22 °C		
Turb.	0.0 NTU		

[illegible]

Solubility
PPT

Sample Information:

6.8 Sample ID GPEC-MW410

11.3 Sample Time: GH ~~1600~~ 1500

12.0

11.9 Color: clear

11.7

11.7 Turbidity: None

11.9

11.6 Field Filtered YES / NO Analyses: _____

11.5

11.5 Filter type: _____

11.3 Odor/Sheen/NAPL Strong OIL

Duplicate Collected YES / NO

If yes, duplicate ID: _____

Fudge water disposal? to ground drummed

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.13
4	0.65
6	1.53

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

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

Notes: Dropped down pumping rate to 0.4 L/m @ 1415

- 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

Low-Flow Groundwater Sampling Form

Project number and name: GPEC-RI Sampling personnel: M. Wiedersum / C. Hays Sample date: 6/17/19 Well ID: GPEC-MW514

Well location description: Area 9
Little League field

Well Construction: 2"
Well diameter: 2"
Well measurement point: Top of casing
Roadbox condition: Good
Well screen interval: 30-40'
Well depth: 39.90'

Sampling Information

Initial depth to water: 32.14' Time: 8.12'
Sample intake depth: 36'
Pump type and ID: Bladder
Stabilized flow rate: 205 L/min 0.4 L/min
Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260 ☒
SVOCs 8270 ☒
VPH ☐
EPH ☐
Metals ☒
PCBs ☒
Other ☒

Field values at time of sample collection:

Time: 1020 Depth to water: 34.15'
Sp. Cond. 0.635 mS/cm
DO 1.11 mg/L
ORP 102 mV
pH 6.29 s.u.
Temp. 16.98 °C
Turb. 17.8 NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10
0858			16.65	0.392	1.86	6.21	190	0.0
0903			17.70	0.470	0.71	6.29	145	979
0908	1		17.24	0.574	0.69	6.33	123	527
0913			17.05	0.604	0.49	6.35	110	255
0918	2		16.98	0.612	0.61	6.34	106	137
0923			16.97	0.618	0.55	6.34	102	741
0928	3		16.95	0.623	0.60	6.34	103	49.6
0933			16.93	0.624	0.62	6.33	101	39.0
0938	4		16.92	0.626	0.69	6.33	100	32.0
0943			16.94	0.627	0.77	6.33	101	28.2
0948	5		16.91	0.628	0.88	6.32	101	24.7
0953			16.93	0.629	0.94	6.29	102	22.0
0958	6		16.92	0.630	1.02	6.31	101	20.6
1003			16.95	0.632	1.03	6.31	101	19.0
1008			16.91	0.629	1.10	6.29	102	17.5
1013			16.98	0.635	1.11	6.29	102	17.8

Notes: PID = 61-7 ppm

Sample Information:

Sample ID: GPEC-MW514
Sample Time: 1020
Color: colorless
Turbidity: clear
Field Filtered YES / NO: - Analyses: -
Filter type: -
Odor/Sheen/NAPL: None
Duplicate Collected YES / NO: (X)
If yes, duplicate ID: -

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
where r = 1/2 diameter in ft

Stabilization Criteria:

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

Purge water disposal? to ground drummed other: free tank

Guidance:

- 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

Low-Flow Groundwater Sampling Form

Project number and name: GPEC-RI Sampling personnel: M. Wiedersum / C. Hayes Sample date: 6/17/19 Well ID: GPEC-MW5135

Well location description: Area 9 - Little League Field

Well Construction: 2"

Well diameter: 2"

Well measurement point: Top of casing

Roadbox condition: Good

Well screen interval: 27-37

Well depth: 36.55'

Sampling Information

Initial depth to water: 29.70' Time: 10:54

Sample intake depth: 33.5'

Pump type and ID: QED MP-50 Bladder

Stabilized flow rate: 0.4 L/min

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260 ☒

SVOCs 8270 ☒

VPH ☐

EPH ☐

Metals ☒

PCBs ☒

Other ☒

Field values at time of sample collection:

Time: 1220

Sp. Cond. 0.891 mS/cm

DO 0.00 mg/L

ORP 114 mV

pH 6.55 s.u.

Temp. 16.38 °C

Turb. 36.35.6 NTU

Depth to water: 29.72'

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10
1103			18.05	0.874	0.90	6.50	101	0.0 (1000)
1108	1		16.93	0.872	0.46	6.53	102	71000
1113			16.61	0.871	0.32	6.56	102	670
1118	2		16.55	0.873	0.23	6.56	101	417
1123			16.51	0.873	0.14	6.56	101	216
1128	3		16.49	0.874	0.10	6.56	103	135
1133			16.44	0.876	0.08	6.56	105	91.5
1138	4		16.49	0.878	0.00	6.57	105	69.9
1143			16.47	0.880	0.00	6.58	106	57.0
1148	5		16.47	0.882	0.00	6.57	108	46.1
1153			16.43	0.883	0.00	6.56	109	48.0
1158	6		16.43	0.884	0.00	6.56	110	43.3
1203			16.40	0.887	0.00	6.55	111	39.0
1208	7		16.39	0.890	0.00	6.55	112	37.1
1213			16.38	0.891	0.00	6.55	114	35.6

Notes: PID 24.0 ppm

Sample Information:

Sample ID: GPEC-MW5135

Sample Time: 1220

Color: colorless

Turbidity: clear

Field Filtered YES / NO: NO Analyses: -

Filter type: -

Odor/Sheen/NAPL: None

Duplicate Collected ☒ YES ☐ NO

If yes, duplicate ID: GPEC-MW-XX-061719

Purge water disposal? to ground ☐ drummed ☐ other: fractank

Well Volume Conversion:	
Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
3.14 x (r)² x 7.48 gal/ft
where r = 1/2 diameter in ft

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

Guidance:

- 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

Low-Flow Groundwater Sampling Form

Project number and name: GPEC RI Sampling personnel: M. Wiedersheim / C. Hays Sample date: 6/17/19 Well ID: GPEC-MW513D

Well location description: Area 9 - Little League Field

Well Construction: 2"

Well diameter: 2"

Well measurement point: Top of casing

Roadbox condition: Good

Well screen interval: 78-88

Well depth: 88-80

Sampling Information

Initial depth to water: 1310 Time: 29.20

Sample intake depth: 83

Pump type and ID: QED MP-50 Bladder

Stabilized flow rate: ~0.2 L/min

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260: ☒

SVOCs 8270: ☒

VPH: ☐

EPH: ☐

Metals: ☒

PCBs: ☒

Other: ☒

Field values at time of sample collection:

Time: 1515 Depth to water: _____

Sp. Cond.: 682 mS/cm

DO: 0.45 mg/L

ORP: 27 mV

pH: 6.63 s.u.

Temp.: 16.89 °C

Turb.: 43.5 NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp. Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10
1405			26.12	0.651	3.19	6.84	119	337
1410			18.62	4.02	1.62	6.64	69	795
1415			17.50	6.65	0.22	6.59	46	513
1420	1		17.53	6.91	0.12	6.61	38	412
1425			17.43	7.89	0.11	6.59	32	299
1430			17.32	7.10	0.09	6.58	30	232
1435			17.45	7.16	0.12	6.59	26	155
1440	2		17.41	7.20	0.08	6.58	24	127
1445			17.44	7.23	0.08	6.58	23	103
1450			17.53	7.27	0.01	6.59	22	92.4
1455	3		16.97	6.88	0.10	6.62	23	48
1500			16.90	6.85	0.28	6.62	25	45.4
1505			16.89	6.82	0.45	6.63	27	43.5

Notes:

Sample Information:

Sample ID: GPEC-MW513D

Sample Time: 1515

Color: colorless

Turbidity: clear

Field Filtered YES / NO: _____ Analyses: _____

Filter type: _____

Odor/Sheen/NAPL: None

Duplicate Collected YES / NO: ☒

If yes, duplicate ID: _____

Purge water disposal? _____ to ground _____ drummed _____ other: fracture tank

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where r = 1/2 diameter in ft

Stabilization Criteria:

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

Guidance:

- 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

Low-Flow Groundwater Sampling Form

Project number and name GPEC-RI Sampling personnel Craig Hayes Sample date 6/18/19 Well ID GPEC-MW505S

Well location description: Area 6 -
W side

Initial depth to water 48.11' Time: 1055

Initial depth to water 48.11' Time: 1055 VOCs 8260
Sample intake depth 51 SVOCs 8270

Sample intake depth 51 SVOCs 8270

Pump type and ID (DED MP-50 Blade VPH

Stabilized flow rate 0.4 L/min

Stabilized flow rate = flow rate with no further drawdown

VOCs 8260 ☒

VOCs 8260

SVOCs 8270

VPH

EPH

Metals

PCBs

Other

Time: 1155 Depth to water:

Time: 1155 Depth to water:

Sp. Cond. 0.877 mS/cm

DO 2.43 mg/L

ORP 156 mV

pH 6.92 S.U.

Temp. 16.74 °C

Turb. 25.2 NTU

[illegible]

Notes: PID - 3.0 ppm MS/MSD

Sample ID *GPEC-MW505 S*

Sample ID GTCC-MW505-3

Sample Time: 1155

Color: Colorless

Turbidity: Clear

Field Filtered YES / NO Analyses:

Filter type:

Odor/Sheen/NAPL *None*

Duplicate Collected YES / NO (X)

If yes, duplicate ID: _____

Purge water disposal?	to ground	drummed
-----------------------	-----------	---------

Diam. (in)	Factor (gal/ft)
------------	-----------------

1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
 $3.14 \times (r)^2 \times 7.48 \text{ gal/ft}$
 where $r = 1/2 \text{ diameter in ft}$

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

Project number and name GPEC RI PH 3 125180-3-1502 Sampling personnel Craig Hayes Sample date 7/19/19 Well ID GPEC-MW538

Turb. 74.6 NTU

Well depth

Stabilized flow rate = flow rate with no further drawdown

[illegible]

Notes: PID-6.8 ppm

Purge water disposal?	to ground	drummed
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to ground

Turb. +/- 10% if v

where $r = 1/2$ diameter in ft

1010. 47-107011

other Frac Tank

- 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



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.: SPEC-MW-101I
PERMIT NO.:

Project No.: 093260-1-1101 Client: National Grid
Project Name: Greenpoint SI Project Location: Brooklyn, NY
Weather Conditions: Hot, Sunny 95°F Sampling Date: 09/01/10

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

a. Depth to LNAPL: (ft) b. Depth to Water: 10.61 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: 77.18 (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
b. Field Testing Equipment: RED BLADDER
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 8:25 End Purge Time: 9:55

Conversion Factors (a x cf = b)	
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 mL/min	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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PRE PURGE VALUES

1	8:25	250	19.97	11.66	1.39	-235	3.66	-5			10.8
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PURGING VALUES

2	8:30		18.34	10.64	1.99	-182	2.98	-5			10.84
3	8:35		18.35	10.36	2.06	-166	2.63	-5			10.84
4	8:40	cleaned flow through cell									10.8
5	8:45		18.14	9.99	2.08	-150	1.66	313			10.9
6	8:50		18.62	10.10	2.08	-156	0.0	350			10.85
7	8:55		18.16	10.17	2.08	-165	0.0	356			10.92
8	9:00		18.09	10.23	2.07	-170	0.0	320			10.97
9	9:05		18.11	10.25	2.06	-173	0.0	288			10.87
10	9:10		18.22	10.31	2.06	-180	0.0	239			10.93
11	9:15		18.16	10.31	2.05	-183	0.00	195			10.87
12	9:20		18.15	10.36	2.05	-188	0.0	161			10.92
13	9:25		18.19	10.37	2.04	-192	0.0	141			10.90
14	9:30		18.2	10.36	2.03	-193	0.0	131			10.86
15	9:35		18.23	10.34	2.02	-191	0.0	114			10.85
16	9:40		18.3	10.33	2.02	-192	0.0	96			10.85
17	9:45		18.26	10.32	2.01	-191	0.0	94.1			10.86
18	9:50		18.29	10.30	2.01	-190	0.0	89.3			10.84

3. SAMPLE COLLECTION DATA

Sampling Personnel:

Sampling Method(s) & Equip:

Sample I.D. (Name, Date, Time): SPEC-MW-101(I) 09/01/10 10:00

Sample Analytical Parameters/Method:

Sample Start Time: 10:00

End Sample Time: 10:30

PID/FID READING(s):

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: Turbidity calibrated correctly but not reading correctly. Out of cal solution. No particles around sensor.

GROUNDWATER SAMPLE COLLECTION RECORD WELL NO.: G9EC-NW-101D
PERMIT NO.:

Project No.: 093260-1-1101 Client: National Grid
Project Name: Greenpoint St Project Location: Brooklyn, NY
Weather Conditions: 95°F Sunny hot Sampling Date: 5/11/10

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

- | | | | | | |
|----|-------------------------|-------------|-------|------------------------|--------------------|
| a. | Depth to LNAPL: | _____ (ft) | b. | Depth to Water: | <u>10.92</u> (ft) |
| c. | Depth to DNAPL: | _____ (ft) | d. | Total Well Depth: | <u>109.82</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
b. Field Testing Equipment: RED Bladder pump
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 11:10 End Purge Time: 12:35

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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PRE PURGE VALUES

1	11:10	125	22.5	9.25	9.16	-174	8.7	-			11.04
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PURGING VALUES

2	11:15	21.54	8.93	11.7	-198	3.02			11.09
3	11:20	21.22	8.88	11.9	-203	1.98			11.10
4	25	20.77	8.72	12.0	-209	1.39			11.10
5	30	20.76	8.73	11.9	-209	1.29			11.12
6	35	20.61	8.70	11.9	-202	1.09	✓		11.14
7	40	20.33	8.63	12.1	-208	0.88	935		11.09
8	45	20.75	8.54	13.0	-205	1.23	772		11.08
9	50	20.77	8.50	13.4	-205	0.94	564		11.09
10	55	20.54	8.43	14.8	-205	0.54	400		—
11	12:00	20.42	8.47	15.3	-209	0.26	380		11.04
12	05	20.48	8.48	15.5	-213	0.12	344		11.02
13	10	20.74	8.49	15.6	-213	0.08	325		11.01
14	15	20.41	8.51	15.5	-212	0.05	340		—
15	20	20.75	8.51	15.5	-213	0.00	320		—
16	25	20.61	8.52	15.6	-213	0.00	340		11.09

3. SAMPLE COLLECTION DATA

Sampling Personnel: KK & AE

Sampling Method(s) & Equip:

Sample I.D. (Name, Date, Time): GPEC-MW-101 (D) 9/01/10 12:25

Sample Analytical Parameters/Method: See Chain

Sample Start Time: 12:25 End Sample Time: 12:35

PID/FID READING(s) :

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS:



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.: GPCC MW-11D
PERMIT NO.:

Project No.: 093200-1-1101 Client: National Grid
Project Name: Greenpoint St Project Location: Brooklyn NY
Weather Conditions: Sunny 90°F Sampling Date: 08/30/10

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

a. Depth to LNAPL: NA (ft) b. Depth to Water: 11.09 (ft)
c. Depth to DNAPL: NA (ft) d. Total Well Depth: 91.13 (ft)
e. LNAPL Thickness: (a-b) NA (ft) f. DNAPL Thickness: (c-d) NA (ft)
g. Length of Water Column: (ft) (a-d)
h. Well Volume: (gal)

Conversion Factors
(a x cf = h)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: Low Flow
b. Field Testing Equipment: Red Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 11:20 End Purge Time:

Read No.	Lapse Time (min.)	Purge Rate (m/min)	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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PRE PURGE VALUES

1	11:25	250	20.48	8.67	1.19	-255	2.58	698			11.14
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PURGING VALUES

2	1130	250	17.52	6.93	3.63	-113	0.62	586			11.17
3	1135		17.33	6.75	3.46	-109	0.00	274			11.18
4	1140		17.26	7.02	3.45	-111	0.00	200			11.11
5	1145		17.29	7.07	3.50	-110	0.00	166			11.10
6	1150		17.25	7.11	3.52	-109	0.00	157			11.20
7	1155		17.15	7.15	3.50	-110	0.00	169			11.13
8	1200		17.19	7.22	3.49	-110	0.00	164			11.21
9	1205	emptied flow-through cell									
10	1210		17.19	7.25	3.74	-99	0.16	67.3			11.20
11	1215		17.17	7.29	3.75	-101	0.00	62.3			11.20
12	1220		17.25	7.34	3.72	-101	0.00	74.9			11.11
13	1225		17.34	7.37	3.69	-100	0.00	77.8			11.11
14	1230		17.13	7.40	3.69	-98	0.00	76.8			11.23
15	1235		17.17	7.45	3.67	-97	0.00	76.8			11.19
16	1240		17.26	7.45	3.65	-96	0.00	83.8			11.11
17	1245		17.14	7.46	3.66	-94	0.00	89.5			11.10
18	1250		17.27	7.48	3.65	-91	0.00	95.0			11.16

3. SAMPLE COLLECTION DATA

Sampling Personnel:

Sampling Method(s) & Equip:

Sample I.D. (Name, Date, Time):

Sample Analytical Parameters/Method:

Sample Start Time:

End Sample Time:

PID/FID READING(s):

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: MS MSD

GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.:

GPCC-MW-11D cont

PERMIT NO.:[illegible]



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.: GPEC-MW-2D

PERMIT NO.:

Project No.: 093240-1-1101 Client: NATIONAL GRID
Project Name: Greenpoint Sl Project Location: Brooklyn NY
Weather Conditions: hot lazy 70-90°F Sampling Date: 8/31/10

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

- a. Depth to LNAPL: NA (ft) b. Depth to Water: 5.32 (ft)
c. Depth to DNAPL: NA (ft) d. Total Well Depth: 91.83 (ft)
e. LNAPL Thickness: (a-b) NA (ft) f. DNAPL Thickness: (c-d) NA (ft)
g. Length of Water Column: (ft) (a-d)
h. Well Volume: (gal)

2. WELL PURGE DATA

- a. Purge Method: Low Flow QED Sample Pro
b. Field Testing Equipment: Horiba U-22
c. Required Total Purge Volume (1f x 2c) (gals.): NA
d. Total Volume and Number of Well Volumes Removed: NA
e. Begin Purge Time: 0825 End Purge Time:

Conversion Factors (a x cf = b)	
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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PRE PURGE VALUES

1	0830	200	17.74	7.42	1.90	-124	0.28	114			5.94
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PURGING VALUES

2	0835	300	17.74	7.43	1.90	-127	0.24	119			5.87
3	0840	300	17.83	7.47	1.89	-127	0.22	120			5.87
4	0845	300	17.70	7.48	1.90	-133	0.14	123			5.94
5	0850	300	17.54	7.61	1.90	-145	0.00	241			5.82
6	0855	300	17.23	7.58	2.04	-131	0.85	25.2			5.84
7	0900	300	17.19	7.57	2.04	-133	0.28	25.0			5.82
8	0905	300	17.03	7.55	2.04	-141	0.00	40.4			5.80
9	0910	300	16.95	7.53	2.05	-142	0.00	41.3			5.82
10	0915	300	16.89	7.60	2.06	-146	0.00	48.6			5.82
11	0920	300	16.91	7.82	2.10	-152	0.00	97.7			5.66
12	0925	300	16.94	7.80	2.09	-152	0.00	129			5.66
13	0930	300	16.92	7.81	2.09	-153	0.00	131			5.66
14	0935	300	16.91	7.83	2.09	-154	0.00	141			5.66
15	0940	300	16.93	7.84	2.09	-155	0.00	144			5.66
16	0945	300	16.91	7.83	2.09	-155	0.00	147			5.66
17	0950										
18	0955										

3. SAMPLE COLLECTION DATA

Sampling Personnel: MTS, KRU

Sampling Method(s) & Equip: Low Flow QED Sample Pro

Sample I.D. (Name, Date, Time): GPEC-MW-2D 8/31/10 0950

Sample Analytical Parameters/Method:

Sample Start Time: 0950

End Sample Time:

PID/FID READING(s):

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: Pump set @ 80 ft to C



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.: GPEC-MW-3WT
PERMIT NO.:

Project No.: 093260-1-1101 Client: NATIONAL GRID
Project Name: Greenpoint S1 Project Location: Brooklyn NY
Weather Conditions: Sunny 90°F Sampling Date: 8/31/10

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

a. Depth to LNAPL: NA (ft) b. Depth to Water: 6.33 (ft)
c. Depth to DNAPL: NA (ft) d. Total Well Depth: 14.00 (ft)
e. LNAPL Thickness: (a-b) NA (ft) f. DNAPL Thickness: (c-d) NA (ft)
g. Length of Water Column: _____ (ft) (a-d)
h. Well Volume: _____ (gal)

Conversion Factors

(a x cf = b)

Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: GED BLADDER - LOW-FLOW
b. Field Testing Equipment: _____
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 8:05 End Purge Time: 09:00

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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PRE PURGE VALUES

1	8:05	2.5	22.55	7.37	12.8	24	8.37	575			7.62
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PURGING VALUES

2	8:10		21.68	7.31	11.8	35	7.26	173			7.97
3	8:15		21.29	7.16	11.8	48	7.10	109			8.01
4	8:20		21.22	7.10	11.8	55	6.44	96			7.98
5	8:25		21.20	7.08	11.8	57	5.86	96.3			7.92
6	8:30		21.12	7.09	11.8	57	5.33	99.8			7.90
7	8:35		21.04	7.11	11.8	58	0.8	113			7.81
8	8:40		21.02	7.12	11.8	58	0.26	110			7.80
9	8:45		21.13	7.11	11.9	58	0.22	111			7.74
10	8:50		21.17	7.11	11.9	59	0.37	112			7.71
11	8:55		21.20	7.10	11.9	60	0.22	114			7.66
12	9:00	— BEGIN SAMPLE —									7.54

3. SAMPLE COLLECTION DATA

Sampling Personnel: _____

Sampling Method(s) & Equip: _____

Sample I.D. (Name, Date, Time): GPEC-MW-3WT 8/31/10 09:00

Sample Analytical Parameters/Method: _____

Sample Start Time: 09:00

End Sample Time: _____

PID/FID READING(s): _____

PID/FID Model & Ionization Potential

ODOR/SHEEN: _____

COMMENTS: _____



GROUNDWATER SAMPLE COLLECTION RECORD

WELL NO.: GPEC-MW-103
PERMIT NO.:

Project No.: 092260-1-1101 Client: NATIONAL GRID
Project Name: GREENPOINT SI Project Location: BROOKLYN NY
Weather Conditions: Sunny hot 95°F Sampling Date: 8/31/10

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

a. Depth to LNAPL: _____ (ft) b. Depth to Water: 5.82 (ft)
c. Depth to DNAPL: _____ (ft) d. Total Well Depth: 65.03 (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 (a x cf = h)	
Well I.D.	Conv. Fact. (cf)
1	0.041
2	0.163
4	0.653
6	1.470

2. WELL PURGE DATA

a. Purge Method: Low Flow
b. Field Testing Equipment: RED Bladder Pump
c. Required Total Purge Volume (1f x 2c) (gals.): _____
d. Total Volume and Number of Well Volumes Removed: _____
e. Begin Purge Time: 10:35 End Purge Time: _____

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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PRE PURGE VALUES

1	10:35	175 mL/min	18.5	8.92	1.38	-94	6.70	864			5.81
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PURGING VALUES

2	10:40		18.24	8.78	1.43	-95	5.91	48			5.80
3	10:45		18.15	8.69	1.43	-100	3.79	560			5.76
4	10:50		18.02	8.69	1.43	-104	1.69	687			5.74
5	10:55		18.04	8.68	1.43	-105	1.21	72			5.71
6	11:00		18.03	8.70	1.43	-107	0.94	79.4			5.70
7	11:05		17.96	8.73	1.42	-109	0.84	84.2			5.71
8	11:10		17.80	8.84	1.41	-116	0.82	89.2			5.69
9	11:15		17.82	8.96	1.40	-123	0.89	96.6			5.69
10	11:20		17.81	9.07	1.38	-129	0.91	99.5			5.66
11	11:25		17.77	9.10	1.37	-131	0.90	107			5.65
12	11:30		17.76	9.11	1.36	-132	0.92	108			5.63
13	11:35		17.65	9.12	1.35	-133	0.86	120			5.62
14	11:40		17.62	9.12	1.34	-134	0.84	122			5.63
15	11:45		17.61	9.13	1.34	-134	0.83	126			5.62
16	11:50		17.83	9.12	1.33	-134	0.82	133			5.54
17	11:55		17.52	9.13	1.32	-136	0.71	139			5.52
18	12:00		17.61	9.13	1.32	-136	0.68	140			5.52

3. SAMPLE COLLECTION DATA

Sampling Personnel: KK / AF

Sampling Method(s) & Equip: _____

Sample I.D. (Name, Date, Time): GPEC-MW-103 12:00 / GPEC-XX-083110 07:00

Sample Analytical Parameters/Method: _____

Sample Start Time: 12:00

End Sample Time: _____

PID/FID READING(s): _____

PID/FID Model & Ionization Potential

ODOR/SHEEN: _____

COMMENTS: _____



GROUNDWATER SAMPLE

WELL NO.: GPEC-MW-102D

COLLECTION RECORD

PERMIT NO.:

Project No.: 093260-1-110 Client: National Grid
Project Name: Greenpoint SP GW Project Location: Maspeth NY
Weather Conditions: Sampling Date: 8/31/10

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

- a. Depth to LNAPL: (ft) b. Depth to Water: 7.61 (ft)
c. Depth to DNAPL: (ft) d. Total Well Depth: (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
b. Field Testing Equipment: QED Sample Pro 3 Horiba U-22
c. Required Total Purge Volume (1f x 2c) (gals.):
d. Total Volume and Number of Well Volumes Removed:
e. Begin Purge Time: 12:45 End Purge Time:

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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PRE PURGE VALUES

1	1255	350	18.40	7.39	1.68	-129	2.53	89.7			7.58
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PURGING VALUES

2	1300	350	17.97	7.37	1.88	-126	1.76	70.7			7.55
3	1305	350	17.95	7.48	2.04	-127	1.68	66.3			7.52
4	1310	350	17.93	7.49	2.06	-129	1.63	81.2			7.52
5	1315	350	17.81	7.70	2.11	-140	1.24	126			7.52
6	1320	350	17.80	7.73	2.12	-140	1.17	128			7.50
7	1325	350	17.73	7.76	2.13	-140	1.03	140			7.50
8	1330	350	17.72	7.78	2.13	-144	0.82	162			7.50
9	1335	350	17.67	7.80	2.13	-141	0.78	184			7.60
10	1340	350	17.79	7.85	2.25	-139	1.70	21.9			7.50
11	1345	350	17.81	7.85	2.25	-141	1.25	30.7			7.50
12	1350	350	17.81	7.87	2.26	-140	1.22	29.6			7.50
13	1355	350	17.79	7.85	2.24	-140	1.21	37.1			7.50
14	1400	350	17.77	7.88	2.24	-140	1.16	37.1			7.50
15	1405	350	17.77	7.88	2.25	-139	1.16	38.0			7.50

3. SAMPLE COLLECTION DATA

Sampling Personnel: MJS

Sampling Method(s) & Equip: Low Flow QED Sample Pro 3 + Horiba U-22

Sample I.D. (Name, Date, Time): GPEC-MW-102D 8/31/10 14:10

Sample Analytical Parameters/Method: VOC, SVOC, PCB, TAL Metals, Total Cyan Free Cyan

Sample Start Time: 14:10

End Sample Time:

PID/FID READING(s):

PID/FID Model & Ionization Potential

ODOR/SHEEN:

COMMENTS: Pump set @ ~ 90 ft TOEC