Appendix A.3. - Groundwater Sampling Field Information Logs

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: D-3
Sampler(s): Ward Hurst
Jon Williams

Top of Casing (ft, msl): 467.92

PURGE INFORMATION:

Method of Well Purge: Waterra
Dedicated Equipment: Yes X No
Date/Time Initiated: 7/9/2013 1303
Casing Diameter (inches): 2
Initial Water Level (feet): 34.67
One Casing Volume (gal): 11.93
Initial Water Level Previous Event (feet): 40.20
One Casing Volume Previous Event (gal): 11.03
Ground Water Elevation (ft, msl): 433.25
Total Volume Purged (gal): 18 gallons
Ground Water Elevation Previous Event (ft, msl): 427.42
Purged Dry?: Yes No ✓
Well Total Depth (feet): 107.86
Water Level after Purge (feet): 34.68
Well Total Depth Previous Event (feet): 107.86
Date/Time Completed: 7/9/2013 1342

PURGE DATA: Average Purge Rate = 0.46 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1316	0.46	6	18.6	6.93	3.71 mS	4.59	NA	Clear
1329	0.46	12	18.4	6.98	3.71 mS	4.38	NA	Clear
1342	0.46	18	18.3	7.00	3.74 mS	9.54	NA	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-3

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 34.68

Well Collection Sequence #: 6 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/9/2013 1342	VOC: N/A Other: N/A	18.3	7.00	3740	9.54	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/9/2013 0820

End of day: (Date/time) 7/9/2013 1530

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120503

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
9.85	N/A	NTU std = 10.0	N/A	10.13	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1011	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1403	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @29.2 °C	N/A	7.27	pH std = 6.98 @34.7 °C
4.01	N/A	pH std = 4.01 @28.8 °C	N/A	4.32	pH std = 4.02 @34.3 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 90°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___

USEPA collected split - Rads + VOCs

Date: 7/9/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: D-6

Sampler(s): Ward Herst
Jan Wilkinson

Top of Casing (ft, msl) 447.09

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/12/2013 1042

Casing Diameter (inches): 2

Initial Water Level (feet): 14.45

One Casing Volume (gal): ~~15.23gal~~ 15.29gal

Initial Water Level Previous Event (feet): 19.92

One Casing Volume Previous Event (gal): 14.33

Ground Water Elevation (ft, msl): 432.64

Total Volume Purged (gal): 24 gallon

Ground Water Elevation Previous Event (ft, msl): 427.17

Purged Dry?: Yes No ✓

Well Total Depth (feet): ~~107.86~~ 108.28 (S)

Water Level after Purge (feet): 14.45

Well Total Depth Previous Event (feet): ~~107.80~~ 108.28 (S)

Date/Time Completed: 7/12/2013 1135

PURGE DATA: Average Purge Rate = 0.45 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1057	0.53	8	17.0	6.97	2100	7.29	N/A	Clear
1116	0.42	16	17.2	7.07	2090	5.02	N/A	Clear
1135	0.42	24	17.3	7.16	2090	5.10	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-6

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 14.45

Well Collection Sequence #: 34 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/12/2013 1135	VOC: N/A Other: N/A	17.3	7.16	2090	5.10	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/12/2013 0700

End of day: (Date/time) 7/12/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508B

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.75	N/A	NTU std = 10.0	N/A	9.82	NTU std = 10.0
993.6	N/A	NTU std = 1,000	N/A	1011	NTU std = 1,000
1422	N/A	µS std = 1,413	N/A	1389	µS std = 1,413
Cell Const: 0.485	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.485	Cell Const Range: 0.45 - 0.50
7.02	N/A	pH std = 7.02 @20.6°C	N/A	7.74	pH std = 7.03 @16.4°C
4.00	N/A	pH std = 4.00 @21.0°C	N/A	4.78	pH std = 4.00 @16.4°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny 75°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

Date: 7/12/2013 By: Title: Senior Cleared Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: D-12
Sampler(s): Matt Stewart
Jon Wilkinson
Top of Casing (ft, msl): 479.67

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/15/13 1439
Initial Water Level (feet): 46.92
Initial Water Level Previous Event (feet): 52.29
Ground Water Elevation (ft, msl): 432.75
Ground Water Elevation Previous Event (ft, msl): 427.38
Well Total Depth (feet): 148.50
Well Total Depth Previous Event (feet): 148.50

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 16.56
One Casing Volume Previous Event (gal): 15.68
Total Volume Purged (gal): 25.50
Purged Dry?: Yes No X
Water Level after Purge (feet): 46.88
Date/Time Completed: 7/15/13 1525

PURGE DATA: 148.50 − 46.92 = 101.58 × 0.163 = 16.56 ÷ 2 = 8.28
Average Purge rate 0.55 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1451	0.71	8.50	19.0	~~6.81~~ 6.74	3410	9.64	N/A	Clear, Septic Odor
1508	0.50	17.00	18.3	6.81	3430	5.75	N/A	Clear, Septic Odor
1525	0.50	25.50	18.2	6.80	3440	7.81	N/A	Clear, Septic Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-12

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 46.88

Well Collection Sequence #: 44 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1527 7/15/13	VOC: Steadily 0.55 gal/min Other:	18.2	6.80	3440	7.81	N/A	Clear, Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/15/13 0925

End of day: (Date/time) 7/15/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 0949 0969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
10.05	N/A	NTU std = 10.0	N/A	10.08	NTU std = 10.0
994.5	N/A	NTU std = 1,000	N/A	1003	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1396	µS std = 1,413
Cell Const: 0.479	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.475	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @27.4°C	N/A	7.04	pH std = 6.98 @34.9°C
4.01	N/A	pH std = 4.01 @27.2°C	N/A	4.05	pH std = 4.02 @33.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 90°F

Sample Characteristics: Clear, Septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 4 of 9

Field Blank @ D-12 Collected @ 1430 4 of 4 of 4 bottles Collected

Duplicate 05 Collected here 9 of 9 Total Red replicate Collected here 1 of 1

MS/MSD collected here 3 of 3

Date: 7/15/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: D-13

Sampler(s): Ward Herst

Top of Casing (ft, msl): ~~470.58~~ 470.53 - Apr 201 470.25 - Jul 201

PURGE INFORMATION:

Method of Well Purge: Waterra

Date/Time Initiated: 7/18/13 1139

Initial Water Level (feet): ~~37.87~~ wk 37.30

Initial Water Level Previous Event (feet): 43.20

Ground Water Elevation (ft, msl): ~~433.23~~ 432.95

Ground Water Elevation Previous Event (ft, msl): 427.53

Well Total Depth (feet): 136.02

Well Total Depth Previous Event (feet): 136.02

Dedicated Equipment: Yes X No ____

Casing Diameter (inches): 2

One Casing Volume (gal): 16.09

One Casing Volume Previous Event (gal): 15.12

Total Volume Purged (gal): 25

Purged Dry?: Yes ____ No X

Water Level after Purge (feet): 37.31 feet

Date/Time Completed: 7/18/13 1219

PURGE DATA: Average Purge Rate = 0.62 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1153	0.59	8.25	16.8	7.38	1130	34.97	N/A	clear
1206	0.63	16.5	16.7	7.48	1135	23.35	N/A	clear
1219	0.65	25	17.2	7.51	1127	18.64	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-13

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 37.31

Well Collection Sequence #: 63 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/18/13 1219	VOC: N/A Other: N/A	17.2	7.51	1127	18.64	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/18/2013 0645

End of day: (Date/time) 7/18/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 2011 03400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.94	N/A	NTU std = 10.0	N/A	9.94	NTU std = 10.0
999.7	N/A	NTU std = 1,000	N/A	1009	NTU std = 1,000
1407	N/A	µS std = 1,413	N/A	1388	µS std = 1,413
Cell Const: 0.476	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.476	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @ 27.2°C	N/A	8.06	pH std = 6.98 @ 34.5°C
4.01	N/A	pH std = 4.01 @ 27.0°C	N/A	5.09	pH std = 4.02 @ 34.5°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 90°S

Sample Characteristics: clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___

Date: 7/18/13 By: [signature] Title: Manager/Director

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: D-14

Sampler(s): Ward Hurst, Matt Steward
Jon Wilkinson

Top of Casing (ft, msl) ~~470.53~~ 483.09

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes ____ No X

Date/Time Initiated: N/A

Casing Diameter (inches): 2

Initial Water Level (feet): N/A

One Casing Volume (gal): N/A

Initial Water Level Previous Event (feet): N/A

One Casing Volume Previous Event (gal): N/A

Ground Water Elevation (ft, msl): N/A

Total Volume Purged (gal): N/A

Ground Water Elevation Previous Event (ft, msl): N/A

Purged Dry?: Yes N/A No N/A

Well Total Depth (feet): N/A

Water Level after Purge (feet): N/A

Well Total Depth Previous Event (feet): 33.30

Date/Time Completed: N/A

PURGE DATA:

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
	Sample Collected Over Multiple Days in Aliquots							
	Due to Limited Volume and Slow Recharge							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION: Sample Point ID: D-14

Sampling Method: Waterra (manual) Dedicated: Yes ____ No X

Water Level @ Sampling (ft): N/A – due to landfill gas present in well headspace – sparking hazard; water level not able to be measured Well Collection Sequence #: 60 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/16/2013 0930	VOC: N/A Other: N/A	35.7	7.25	3940	109.4	N/A	Lt. tan

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/16/2013 0645

End of day: (Date/time) 7/16/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #20120508B3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.09	NTU std = 0.02
10.16	N/A	NTU std = 10.0	N/A	10.19	NTU std = 10.0
1001	N/A	NTU std = 1,000	N/A	1005	NTU std = 1,000
1414	N/A	µS std = 1,413	N/A	1402	µS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @27.2°C	N/A	7.01	pH std = 6.98 @34.5°C
4.01	N/A	pH std = 4.01 @27.1°C	N/A	4.03	pH std = 4.02 @34.5°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Light tan

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___ * VOAs effervesced – sent unpreserved *

* 7-day hold *

Sample collected over multiple days in aliquots due to limited available volume + slow recharge

Date: 7/16/2013 By: _____ Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: D-81

Sampler(s): Jon W. Mennie

Top of Casing (ft, msl): 450.87

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/17/2013 1009

Casing Diameter (inches): 2

Initial Water Level (feet): 18.20

One Casing Volume (gal): 7.25 gal

Initial Water Level Previous Event (feet): 22.77

One Casing Volume Previous Event (gal): 6.51

Ground Water Elevation (ft, msl): 432.67

Total Volume Purged (gal): 11.25 gallons

Ground Water Elevation Previous Event (ft, msl): 428.10

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 62.69

Water Level after Purge (feet): 18.18

Well Total Depth Previous Event (feet): 62.69

Date/Time Completed: 7/17/2013 1043

PURGE DATA: Average Purge Rate = 0.33 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1021	0.31	3.75	15.9	6.53	1235	14.48	N/A	Clear
1032	0.34	7.5	16.2	6.54	1236	12.44	N/A	Clear
1043	0.34	11.25	15.7	6.60	1236	11.82	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-81

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 18.18

Well Collection Sequence #: 53 of 70

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/17/2013 1043	VOC: N/A Other: N/A	15.7	6.60	1236	11.82	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/17/2013 0630

End of day: (Date/time) 7/17/2013 1545

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 201205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.02	NTU std = 0.02
10.01	N/A	NTU std = 10.0	N/A	9.98	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1005	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1391	µS std = 1,413
Cell Const: 0.481	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.481	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.2°C	N/A	7.02	pH std = 6.98 @34.2°C
4.01	N/A	pH std = 4.01 @26.2°C	N/A	4.08	pH std = 4.02 @34.2°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 90°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 10 bottles

Sample Device Left in Well YES ✓ or NO ___ Collect Replicate (Total vocs only) here

Collect DUP06 - 9 bottles - here

Date: 7/17/2013 By: [signature] Title: Env

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: D-83
Sampler(s): Ward Herst
Jon Wilkerson

Top of Casing (ft, msl): 448.55

PURGE INFORMATION:

Method of Well Purge: Waterra
Dedicated Equipment: Yes X No
Date/Time Initiated: 7/11/2013 1227
Casing Diameter (inches): 2
Initial Water Level (feet): 15.25
One Casing Volume (gal): 13.56gal
Initial Water Level Previous Event (feet): 21.01
One Casing Volume Previous Event (gal): 12.62
Ground Water Elevation (ft, msl): 433.30
Total Volume Purged (gal): 21 gallons
Ground Water Elevation Previous Event (ft, msl): 427.54
Purged Dry?: Yes No ✓
Well Total Depth (feet): 98.41
Water Level after Purge (feet): 15.25
Well Total Depth Previous Event (feet): 98.41
Date/Time Completed: 7/11/2013 1305

PURGE DATA: Average Purge Rate = 0.55 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1241	0.50	7	16.5	6.86	1526	4.05	N/A	Clear
1253	0.58	14	16.5	6.87	1503	3.06	N/A	Clear
1305	0.58	21	16.6	6.92	1505	4.05	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-83

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 15.25

Well Collection Sequence #: 23 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/11/2013 1305	VOC: N/A Other: N/A	16.6	6.92	1505	4.05	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/2013 0710

End of day: (Date/time) 7/11/2013 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508 3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.16	NTU std = 0.02
9.94	N/A	NTU std = 10.0	N/A	10.03	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1023	NTU std = 1,000
1416	N/A	µS std = 1,413	N/A	1395	µS std = 1,413
Cell Const: 0.483	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.13	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.12	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 10 bottles

Sample Device Left in Well YES ✓ or NO ___ Collect replicate - Total rads only

Collect DUP 03 - 9 bottles ; USEPA collects split - Total Rads, VOCs, Metals

Date: 7/11/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: D-85
Sampler(s): Ward Herst
Jon Williams

Top of Casing (ft, msl): 457.06

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/10/2013 1007
Initial Water Level (feet): 23.55
Initial Water Level Previous Event (feet): 29.42
Ground Water Elevation (ft, msl): 433.51
Ground Water Elevation Previous Event (ft, msl): 427.64
Well Total Depth (feet): 81.07
Well Total Depth Previous Event (feet): 81.07

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 9.38 gallons
One Casing Volume Previous Event (gal): 8.42
Total Volume Purged (gal): 15 gallons
Purged Dry?: Yes No ✓
Water Level after Purge (feet): 23.65
Date/Time Completed: 7/10/2013 1052

PURGE DATA: Average Purge Rate = 0.33 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1023	0.31	5	16.8	6.79	2500	395.0	N/A	Grey; cloudy
1037	0.36	10	16.6	6.84	2508	483.9	N/A	cloudy; grey
1052	0.33	15	16.6	6.81	2460	526.3	N/A	cloudy; grey

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-85

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 23.65

Well Collection Sequence #: 10 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/10/2013 1052	VOC: N/A Other: N/A	16.6	6.81	2460	526.3	N/A	Cloudy, gray

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/2013 0915

End of day: (Date/time) 7/10/2013 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 201205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.04	NTU std = 0.02
9.91	N/A	NTU std = 10.0	N/A	9.78	NTU std = 10.0
995.1	N/A	NTU std = 1,000	N/A	1006	NTU std = 1,000
1407	N/A	µS std = 1,413	N/A	1394	µS std = 1,413
Cell Const: 0.472	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.477	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @28.2°C	N/A	7.25	pH std = 6.99 @30.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.26	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Overcast, Lt. Rain, 80°F

Sample Characteristics: Cloudy, gray

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 10 bottles

Sample Device Left in Well YES ✓ or NO ___ collect Replicate - Total Rads

USEPA collects SOW - VOCs, Rads, Metals

Date: 7/10/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: D-87
Sampler(s): Matt Stewart
Ward Herst

Top of Casing (ft, msl): 464.41

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/17/13 1331
Initial Water Level (feet): 31.59
Initial Water Level Previous Event (feet): 36.80
Ground Water Elevation (ft, msl): 432.82
Ground Water Elevation Previous Event (ft, msl): 427.61
Well Total Depth (feet): 112.75
Well Total Depth Previous Event (feet): 112.75

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 13.23
One Casing Volume Previous Event (gal): 12.37
Total Volume Purged (gal): 20.25
Purged Dry?: Yes No X
Water Level after Purge (feet): 31.59
Date/Time Completed: 7/17/13 1411

PURGE DATA: 112.75 − 31.59 = 81.16 × 0.163 = 13.23 ÷ 2 = 6.62 Average Purge Rate 0.51 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1346	0.45	6.75	17.1	6.93	2740	115.4	N/A	Gray, No Odor
1357	0.61	13.50	17.1	6.97	2750	87.41	N/A	Gray, No Odor
1411	0.48	20.25	17.0	6.99	2760	63.97	N/A	Gray, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-87

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 31.59

Well Collection Sequence #: 58 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1411 7/17/13	VOC: <100 ml/min Other: 0.5 gal/min	17.0	6.99	2760	63.97	N/A	Gray, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/17/13 0630

End of day: (Date/time) 7/17/13 1545

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110 3400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.04	N/A	NTU std = 0.02	N/A	0.16	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	10.28	NTU std = 10.0
998.5	N/A	NTU std = 1,000	N/A	978.8	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1402	µS std = 1,413
Cell Const: 0.477	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.477	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.2°C	N/A	7.14	pH std = 6.98 @34.2°C
4.01	N/A	pH std = 4.01 @26.2°C	N/A	4.20	pH std = 4.02 @34.2°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Overcast, 90°F

Sample Characteristics: Gray, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO ___ Full Suite Collected (YES) or NO ___

Sample Device Left in Well (YES) or NO ___ 9 of 9

Date: 7/17/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: D-93

Sampler(s): Ward Herst
Jan Wilkinson

Top of Casing (ft, msl) JW ~~449.84~~ 450.76

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/11/2013 1502

Casing Diameter (inches): 2

Initial Water Level (feet): 16.98

One Casing Volume (gal): 15.91 gal

Initial Water Level Previous Event (feet): 22.16

One Casing Volume Previous Event (gal): 15.07

Ground Water Elevation (ft, msl): JW ~~432.86~~ 433.78

Total Volume Purged (gal): 24 gallons

Ground Water Elevation Previous Event (ft, msl): JW ~~427.68~~ 428.60

Purged Dry?: Yes No ✓

Well Total Depth (feet): 114.60

Water Level after Purge (feet): 16.95

Well Total Depth Previous Event (feet): 114.60

Date/Time Completed: 7/11/2013 1540

PURGE DATA: Average Purge Rate = 0.63 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1514	0.67	8	19.5	6.78	2750	9.41	N/A	Clear
1527	0.62	16	19.5	6.83	2580	14.86	N/A	clear
1540	0.62	24	19.4	6.88	2630	10.08	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: D-93

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 16.95

Well Collection Sequence #: 27 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/11/2013 1540	VOC: N/A Other: N/A	19.4	6.80	2630	10.08	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/2013 0710

End of day: (Date/time) 7/11/203 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508B

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.16	NTU std = 0.02
9.94	N/A	NTU std = 10.0	N/A	10.03	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1023	NTU std = 1,000
1416	N/A	µS std = 1,413	N/A	1395	µS std = 1,413
Cell Const: 0.483	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.13	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.18	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO - 9 bottles

Sample Device Left in Well YES ✓ or NO USEPA collects D/A - Total Rads, VOCs, 4 metals + blind dup

Date: 7/11/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: I-4

Sampler(s): Wavel Herst
Jan Wilkens

Top of Casing (ft, msl): 466.18 – Apr 2013
465.88 – Jul 2013

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/9/2013 1137

Casing Diameter (inches): 2

Initial Water Level (feet): 32.51

One Casing Volume (gal): 7.48

Initial Water Level Previous Event (feet): 30.52

One Casing Volume Previous Event (gal): 6.54

Ground Water Elevation (ft, msl): (JW) ~~433.67~~ 433.37

Total Volume Purged (gal): 11.25 gallons

Ground Water Elevation Previous Event (ft, msl): 427.66

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 78.37

Water Level after Purge (feet): 32.52

Well Total Depth Previous Event (feet): 78.66

Date/Time Completed: 7/9/2013 1225

PURGE DATA: Average Purge Rate = 0.23 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1153	0.23	3.75	18.9	6.70	3180	6.16	N/A	Clear
1209	0.23	7.5	18.8	6.76	3130	2.97	N.A	Clear
1225	0.23	11.25	18.7	6.71	3120	5.58	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: I-4

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 32.52

Well Collection Sequence #: 4 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/9/2013 1225	VOC: N/A Other: N/A	18.7	6.71	3120	5.58	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/9/2013 0820

End of day: (Date/time) 7/9/2013 1530

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508J

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
9.85	N/A	NTU std = 10.0	N/A	10.13	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1011	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1403	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @29.2°C	N/A	7.27	pH std = 6.98 @34.7°C
4.01	N/A	pH std = 4.01 @28.8°C	N/A	4.32	pH std = 4.02 @34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 85°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 10 bottles (includes replicate) 2x total rads

Sample Device Left in Well YES ✓ or NO

collect DUP01 - 9 bottles USEPA collect sp17 - RADS, VOAs, metals

Date: 7/9/2013 By: Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: I-9

Sampler(s): Ward Herst
Jon Wilkinson

Top of Casing (ft, msl): (JW) ~~450.76~~ 449.84

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/11/2013 1603

Casing Diameter (inches): 2

Initial Water Level (feet): 17.89

One Casing Volume (gal): 6.39 gal

Initial Water Level Previous Event (feet): 20.09

One Casing Volume Previous Event (gal): 5.70

Ground Water Elevation (ft, msl): (JW) ~~432.09~~ 431.95

Total Volume Purged (gal): 10.5 gallons

Ground Water Elevation Previous Event (ft, msl): (JW) ~~427.67~~ 429.75

Purged Dry?: Yes No ✓

Well Total Depth (feet): 57.09

Water Level after Purge (feet): 17.92

Well Total Depth Previous Event (feet): 57.09

Date/Time Completed: 7/11/2013 1626

PURGE DATA: Average Purge Rate = 0.46 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1612	0.39	3.5	20.2	7.00	2700	21.83	NA	Clear
1619	0.50	7	20.1	7.02	2710	22.55	NA	Clear
1626	0.50	10.5	20.1	7.01	2700	15.31	NA	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: I-9

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 17.92

Well Collection Sequence #: 28 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/11/2013 1626	VOC: N/A Other: N/A	20.1	7.01	2700	15.31	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/2013 0710

End of day: (Date/time) 7/11/2013 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 201205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200755

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.16	NTU std = 0.02
9.94	N/A	NTU std = 10.0	N/A	10.03	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1023	NTU std = 1,000
1416	N/A	µS std = 1,413	N/A	1395	µS std = 1,413
Cell Const: 0.483	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.13	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.12	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___ USEPA collects split Total Rads, VOCs, + metals

Date: 7/11/2013 By: [signature] Title: Senior Licensed Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: I-11
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 480.01

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/15/13 1258
Initial Water Level (feet): 47.28
Initial Water Level Previous Event (feet): 52.61
Ground Water Elevation (ft, msl): 432.73
Ground Water Elevation Previous Event (ft, msl): 427.40
Well Total Depth (feet): 94.40
Well Total Depth Previous Event (feet): 94.40

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 7.68
One Casing Volume Previous Event (gal): 6.81
Total Volume Purged (gal): 12.00
Purged Dry?: Yes No X
Water Level after Purge (feet): 47.28
Date/Time Completed: 7/15/13 1315

PURGE DATA: 94.40 - 47.28 = 47.12 x 0.163 = 7.68 ÷ 2 = 3.84

Average Purge Rate 0.67 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1304	0.67	4.00	18.1	6.76	2350	15.32	N/A	Clear, Slight Septic Odor
1309	0.80	8.00	18.0	6.77	2360	9.66	N/A	Clear, Slight Septic Odor
1315	0.67	12.00	18.0	6.77	2340	7.48	N/A	Clear, Slight Septic Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION: Sample Point ID: I-11

Sampling Method: Waterra Dedicated: Yes X No

Water Level @ Sampling (ft): 47.28 Well Collection Sequence #: 42 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1317 7/15/13	VOC: [illegible] Other: 0.71 gal/min	18.0	6.77	2340	7.48	N/A	Clear, Slight Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/15/13 0925

End of day: (Date/time) 7/15/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 201103400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490469

Purging Event Start of day	Purging Event End of day	Standard	Sampling Event Start of day	Sampling Event End of day	Standard
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
10.05	N/A	NTU std = 10.0	N/A	10.08	NTU std = 10.0
994.5	N/A	NTU std = 1,000	N/A	1003	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1396	µS std = 1,413
Cell Const: 0.474	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.475	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @27.4°C	N/A	7.04	pH std = 6.98 @34.0°C
4.01	N/A	pH std = 4.01 @27.2°C	N/A	4.05	pH std = 4.02 @33.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Partly Sunny, 90°F

Sample Characteristics: Clear, Slight Septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO 9 of 9

Sample Device Left in Well (YES) or NO

Date: 7/15/13 By: Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc. Matt Stewart

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: I-62
Sampler(s): Ward Herst
Jon Wilkins

Top of Casing (ft, msl): 446.37

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/12/2013 0945
Initial Water Level (feet): 12.91
Initial Water Level Previous Event (feet): 18.84
Ground Water Elevation (ft, msl): 433.46
Ground Water Elevation Previous Event (ft, msl): 427.53
Well Total Depth (feet): 44.95
Well Total Depth Previous Event (feet): 44.95

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 5.22gal
One Casing Volume Previous Event (gal): 4.26
Total Volume Purged (gal): 8.25 gallons
Purged Dry?: Yes No ✓
Water Level after Purge (feet): 12.94
Date/Time Completed: 7/12/2013 0956

PURGE DATA: Average Purge Rate = 0.75 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
0948	0.92	2.75	16.3	7.17	848	12.90	N/A	Clear
0952	0.69	5.5	16.3	7.12	867	11.91	N/A	Clear
0956	0.69	8.25	16.3	7.13	939	10.44	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: I-62

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 12.94

Well Collection Sequence #: 32 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/12/2013 0956	VOC: N/A Other: N/A	16.3	7.13	839	10.44	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/12/2013 0700

End of day: (Date/time) 7/12/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 201205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.75	N/A	NTU std = 10.0	N/A	9.87	NTU std = 10.0
993.6	N/A	NTU std = 1,000	N/A	1011	NTU std = 1,000
1422	N/A	µS std = 1,413	N/A	1389	µS std = 1,413
Cell Const: 0.485	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.485	Cell Const Range: 0.45 - 0.50
7.02	N/A	pH std = 7.02 @20.6°C	N/A	7.74	pH std = 7.03 @16.4°C
4.00	N/A	pH std = 4.00 @21.0°C	N/A	4.78	pH std = 4.00 @16.4°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 70°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ - 9 bottles

Sample Device Left in Well YES ✓ or NO ___ Collect DUP 04 - 9 bottles

Date: 7/12/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

Herst & Associates, Inc. 4631 North St. Peters Parkway, St. Charles, MO 63304 (636) 939-9111 (636) 939-9757 fax

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: I-65
Sampler(s): Matt Stewart
Jon Wilkens

Top of Casing (ft, msl): 441.53

PURGE INFORMATION:

Method of Well Purge: Waterra
Dedicated Equipment: Yes X No
Date/Time Initiated: 7/18/2013 1041
Casing Diameter (inches): 2
Initial Water Level (feet): 8.65
One Casing Volume (gal): 4.93 gal
Initial Water Level Previous Event (feet): 14.02
One Casing Volume Previous Event (gal): 4.06
Ground Water Elevation (ft, msl): 432.88
Total Volume Purged (gal): 7.5 gallons
Ground Water Elevation Previous Event (ft, msl): 427.51
Purged Dry?: Yes No ✓
Well Total Depth (feet): 38.90
Water Level after Purge (feet): 18.65
Well Total Depth Previous Event (feet): 38.90
Date/Time Completed: 7/18/2013 1059

PURGE DATA: Average Purge Rate = 0.42 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1047	0.42	2.5	14.5	7.12	924	23.37	N/A	Clear
1053	0.42	5	14.6	7.09	914	16.90	N/A	Clear
1059	0.42	7.5	14.7	7.10	909	15.84	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: I-65

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 18.65

Well Collection Sequence #: 62 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/18/2013 1059	VOC: N.A Other: N.A	14.7	7.10	909	15.84	N.A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/18/2013 0645

End of day: (Date/time) 7/18/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120503

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.09	NTU std = 0.02
10.16	N/A	NTU std = 10.0	N/A	10.19	NTU std = 10.0
1001	N/A	NTU std = 1,000	N/A	1005	NTU std = 1,000
1414	N/A	µS std = 1,413	N/A	1402	µS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @22.2°C	N/A	7.01 7.04 @	pH std = 6.98 @34.5°C
4.01	N/A	pH std = 4.01 @27.1°C	N/A	4.03	pH std = 4.02 @34.5°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 90's F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

collect DUP 07 here - 9 bottles

Date: 7/18/2013 By: Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: I-66

Sampler(s): Matt Stewart

Top of Casing (ft, msl): 441.87

PURGE INFORMATION:

Method of Well Purge: Waterra

Date/Time Initiated: 7/15/13 1017

Initial Water Level (feet): 8.67

Initial Water Level Previous Event (feet): 14.51

Ground Water Elevation (ft, msl): 433.20

Ground Water Elevation Previous Event (ft, msl): 427.36

Well Total Depth (feet): 41.29

Well Total Depth Previous Event (feet): 41.29

Dedicated Equipment: Yes X No

Casing Diameter (inches): 2

One Casing Volume (gal): 5.32

One Casing Volume Previous Event (gal): 4.37

Total Volume Purged (gal): 8.25

Purged Dry?: Yes No X

Water Level after Purge (feet): 8.67

Date/Time Completed: 7/15/13 1042

PURGE DATA: 41.29 - 8.67 = 32.62 x 0.163 = 5.32 ÷ 2 = 2.66

Average Purge Rate 0.33 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1026	0.31	2.75	15.9	6.87	1006	44.67	N/A	Brown, No Odor
1033	0.39	5.50	15.6	6.87	1003	25.17	N/A	Clear, No Odor
1042	0.31	8.25	15.6	6.87	997	12.14	N/A	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: I-66

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 8.67

Well Collection Sequence #: 38 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1044 7/15/13	VOC: ~~200 ml/min~~ Other: ~~0.33 gal/min~~	15.6	6.87	997	12.14	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/15/13 0925

End of day: (Date/time) 7/15/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340U

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
10.05	N/A	NTU std = 10.0	N/A	10.08	NTU std = 10.0
994.5	N/A	NTU std = 1,000	N/A	1003	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1396	µS std = 1,413
Cell Const: 0.479	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.475	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @27.4°C	N/A	7.04	pH std = 6.98 @34.0°C
4.01	N/A	pH std = 4.01 @27.2°C	N/A	4.05	pH std = 4.02 @33.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO

Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO

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Date: 7/15/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: I-67

Sampler(s): Matt Stewart

Top of Casing (ft, msl): 441.78

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/12/13 1306

Casing Diameter (inches): 2

Initial Water Level (feet): 8.44

One Casing Volume (gal): 5.24

Initial Water Level Previous Event (feet): 14.43

One Casing Volume Previous Event (gal): 4.26

Ground Water Elevation (ft, msl): 433.34

Total Volume Purged (gal): 8.25

Ground Water Elevation Previous Event (ft, msl): 427.35

Purged Dry?: Yes No X

Well Total Depth (feet): 40.59

Water Level after Purge (feet): 25.03

Well Total Depth Previous Event (feet): 40.59

Date/Time Completed: 7/12/13 1331

PURGE DATA: 40.59 - 8.44 = 32.15 x 0.163 = 5.24 ÷ 2 = 2.62

Average Purge Rate 0.33 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1313	0.39	2.75	15.7	6.82	1510	19.43	N/A	Black Tint, Slight septic odor
1323	0.28	5.50	15.7	6.81	1490	13.16	N/A	Clear, Slight Septic Odor
1331	0.34	8.25	16.0	6.82	1485	14.87	N/A	Clear, Slight Septic odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: I-67

Sampling Method: Waterra

Dedicated: Yes X No ____

Water Level @ Sampling (ft): 25.03

Well Collection Sequence #: 36 of 76

Parameters: Annual: ____ Semi-Annual: Quarterly: ____ Monthly: ____ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1333 7/12/13	VOC: [illegible] ml/min Other: 0.33 gal/min	16.0	6.82	1485	14.87	N/A	Clear, Slight Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/12/13 0700

End of day: (Date/time) 7/12/13 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 201103400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event: Start of day	Purging Event: End of day		Sampling Event: Start of day	Sampling Event: End of day	
0.01	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	9.84	NTU std = 10.0
997.0	N/A	NTU std = 1,000	N/A	1004	NTU std = 1,000
1423	N/A	µS std = 1,413	N/A	1428	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.02	N/A	pH std = 7.02 @20.6°C	N/A	7.02	pH std = 7.03 @16.4°C
4.00	N/A	pH std = 4.00 @21.0°C	N/A	4.04	pH std = 4.00 @16.4°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear, Slight Septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO ____ Full Suite Collected (YES) or NO ____ 9 of 9

Sample Device Left in Well (YES) or NO ____

Replicate Collected here 1 of 1

Date: 7/12/13 By: Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc. Matt Stewart

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: I-68
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 450.39

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/12/13 1415
Initial Water Level (feet): 16.99
Initial Water Level Previous Event (feet): 22.73
Ground Water Elevation (ft, msl): 433.40
Ground Water Elevation Previous Event (ft, msl): 427.66
Well Total Depth (feet): 40.77
Well Total Depth Previous Event (feet): 40.77

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 3.88
One Casing Volume Previous Event (gal): 2.94
Total Volume Purged (gal): 6.00
Purged Dry?: Yes No X
Water Level after Purge (feet): 16.99
Date/Time Completed: 7/12/13 1433

PURGE DATA: 40.77 - 16.99 = 23.78 x 0.163 = 3.88 ÷ 2 = 1.94

Average Purge Rate 0.33 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1421	0.33 (0.50)	2.00	16.7	6.57	2000	278.1	N/A	Brown, No Odor
1429	0.25	4.00	16.7	6.58	2070	587.3	N/A	Brown, No Odor
1433	0.50	6.00	16.4	6.61	2100	679.8	N/A	Brown, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: I-68

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 16.99

Well Collection Sequence #: 37 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1435 7/12/13	VOC: ~~150 ml/min~~ Other: 0.33 gal/min	16.4	6.61	2100	674.8	N/A	Brown, N, Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/12/13 0700

End of day: (Date/time) 7/12/13 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.81	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	9.89	NTU std = 10.0
997.0	N/A	NTU std = 1,000	N/A	1004	NTU std = 1,000
1423	N/A	µS std = 1,413	N/A	1428	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.02	N/A	pH std = 7.02 @20.6°C	N/A	7.02	pH std = 7.03 @16.4°C
4.00	N/A	pH std = 4.00 @21.0°C	N/A	4.04	pH std = 4.00 @16.4°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Brown, No Odo

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO

Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO

9 of 9

Date: 7/12/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: I-73
Sampler(s): Ward Herst
Jon Wilkinson

Top of Casing (ft, msl): 461.40

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/18/13 1041
Initial Water Level (feet): 28.37
Initial Water Level Previous Event (feet): 33.09
Ground Water Elevation (ft, msl): 433.03
Ground Water Elevation Previous Event (ft, msl): 428.31
Well Total Depth (feet): 49.78
Well Total Depth Previous Event (feet): 50.38

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 3.49
One Casing Volume Previous Event (gal): 2.82
Total Volume Purged (gal): 3.5 gallons
Purged Dry?: Yes ✓ No
Water Level after Purge (feet): Dry
Date/Time Completed: 7/18/2013 1051

PURGE DATA: Average Purge Rate = 0.35 gallons/minute

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1046	0.35	1.75	19.7	6.84	4460	99.5	N/A	septic
1051	0.35	3.50	19.8	6.73	5340	1396	N/A	Septic
		well goes dry @ 3.5 gallons						

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: I-73

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 29.50

Well Collection Sequence #: 67 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/19/2013 0955	VOC: N/A	20.6 21.4 ②	6.48	8690	30.53	N/A	Lt ~~brn~~ green
	Other: N/A						

INSTRUMENT CALIBRATION DATA:

	Purging Event			Sampling Event		
	7/18/2013	7/19/2013				
Start of day: (Date/Time)	0645	0715				
	7/18/2013	7/19/2013				
End of day: (Date/time)	1515	1345				
Turbidity Meter:	HF MicroTPW					
Turbidity Meter S/N:	# 20120508B3					
pH / Sp. Cond. Meter:	WTW pH/Cond 3400i					
pH / Sp. Cond. Meter S/N:	#08200255					

Start of day	End of day		Start of day	End of day	
0.02	0.09 ~~N/A~~	NTU std = 0.02	0.02 ~~N/A~~	0.00	NTU std = 0.02
10.16	10.19 ~~N/A~~	NTU std = 10.0	9.95 ~~N/A~~	9.74	NTU std = 10.0
1001	1005 ~~N/A~~	NTU std = 1,000	1001 ~~N/A~~	1025	NTU std = 1,000
1414	1402 ~~N/A~~	µS std = 1,413	1404 ~~N/A~~	1370	µS std = 1,413
Cell Const: 0.487	Cell Const: 0.483 ~~N/A~~	Cell Const Range: 0.45 - 0.50	Cell Const: 0.483 ~~N/A~~	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
7.00	7.01 ~~N/A~~	pH std = 7.00 @ 27.2°C 6.98 @ 34.5°C	6.99 ~~N/A~~	6.99	6.99 @ 27.6°C pH std = 6.98 @ 35.0°C
4.01	4.03 ~~N/A~~	pH std = 4.01 @ 27.1°C 4.02 @ 34.5°C	4.01 ~~N/A~~	4.03	4.01 @ 28.2°C pH std = 4.02 @ 34.8°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, Breezy, 80°F

Sample Characteristics: Light green

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 12 bottles

Sample Device Left in Well YES ✓ or NO ___ Collect MS/MSD here - VOCs only

Collect FB@I-73@ 0850 - VOCs & Total Metals only

* All VOAs effervesced & fizzed - all 6 VOAs have bubbles

Date: 7/19/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: LR-100

Sampler(s): Matt Stewart
Ward Herst

Top of Casing (ft, msl): 468.14

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/17/13 1008

Casing Diameter (inches): 2

Initial Water Level (feet): 15.31

One Casing Volume (gal): 1.94

Initial Water Level Previous Event (feet): 15.26

One Casing Volume Previous Event (gal): 5.82

Ground Water Elevation (ft, msl): 452.83

Total Volume Purged (gal): 3.25

Ground Water Elevation Previous Event (ft, msl): 452.88

Purged Dry?: Yes No X

Well Total Depth (feet): 27.19

Water Level after Purge (feet): 15.57

Well Total Depth Previous Event (feet): 27.19

Date/Time Completed: 7/17/13 1023

PURGE DATA: 27.19 - 15.31 = 11.88 x 0.163 = 1.94 ÷ 2 = 0.97

Average Purge Rate 0.22 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1015	0.18	1.25	18.1	6.64	2840	14.25	N/A	Clear, Slight Septic Odor
1019	0.25	2.25 ~~2.50~~	17.5	6.62	2790	12.07	N/A	Clear, Slight Septic Odor
1023	0.25	3.25 ~~3.75~~	17.6	6.61	2750	15.26	N/A	Clear, Slight Septic Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: LR-100

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): (MP) 15.57

Well Collection Sequence #: 52 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1023 7/17/13	VOC: <100 mL/min Other: 0.22 gal/min	17.6	6.61	2750	15.26	N/A	Clear, Slight Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/17/13 0630

End of day: (Date/time) 7/17/13 1545

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.04	N/A	NTU std = 0.02	N/A	0.16	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	10.28	NTU std = 10.0
998.5	N/A	NTU std = 1,000	N/A	978.8	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1402	µS std = 1,413
Cell Const: 0.477	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.477	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.2°C	N/A	7.14	pH std = 6.98 @34.2°C
4.01	N/A	pH std = 4.01 @26.2°C	N/A	4.20	pH std = 4.02 @34.2°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear, Slight Septic Odor.

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

VOAs effervesced; sent unpreserved

Date: 7/17/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: LR-103
Sampler(s): Matt Stewart
Ward Hearst

Top of Casing (ft, msl): 470.54

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/17/13 1204
Initial Water Level (feet): 37.73
Initial Water Level Previous Event (feet): 42.78
Ground Water Elevation (ft, msl): 432.81
Ground Water Elevation Previous Event (ft, msl): 427.76
Well Total Depth (feet): 49.90
Well Total Depth Previous Event (feet): 49.90

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 1.98
One Casing Volume Previous Event (gal): 1.16
Total Volume Purged (gal): 3.25
Purged Dry?: Yes No X
Water Level after Purge (feet): 37.77
Date/Time Completed: 7/17/13 1215

PURGE DATA: 49.90 − 37.73 = 12.17 × 0.163 = 1.98 ÷ 2 = 0.99
Average Purge Rate 0.30 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1209	0.25	1.25	20.2	6.73	1861	120.6	N/A	Brown, No Odor
1212	0.33	2.25	19.8	6.73	1859	23.14	N/A	Clear, No Odor
1215	0.33	3.25	19.6	6.73	1861	8.79	N/A	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: LR-103

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 37.77

Well Collection Sequence #: 55 of 76

Parameters: Annual: ___ Semi-Annual: ___ Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1215 7/17/13	VOC: <100 mL/min Other: 0.30 gal/min	19.6	6.73	1861	8.74	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/17/13 0630

End of day: (Date/time) 7/17/13 1545

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340o

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.04	N/A	NTU std = 0.02	N/A	0.16	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	10.28	NTU std = 10.0
998.5	N/A	NTU std = 1,000	N/A	978.8	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1402	µS std = 1,413
Cell Const: 0.477	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.477	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.2°C	N/A	7.14	pH std = 6.98 @24.2°C
4.01	N/A	pH std = 4.01 @26.2°C	N/A	4.20	pH std = 4.02 @24.2°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Partly Sunny, 90°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/17/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: LR-104
Sampler(s): Matt Stewart
Jon Wilkinson

Top of Casing (ft, msl): 459.38

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/22/2013 1129
Initial Water Level (feet): 26.55
Initial Water Level Previous Event (feet): 31.31
Ground Water Elevation (ft, msl): 432.83
Ground Water Elevation Previous Event (ft, msl): 428.07
Well Total Depth (feet): 65.00
Well Total Depth Previous Event (feet): 65.00

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 6.27 gal
One Casing Volume Previous Event (gal): 5.49
Total Volume Purged (gal): 9.75 gallons
Purged Dry?: Yes No ✓
Water Level after Purge (feet): 26.63
Date/Time Completed: 7/22/2013 1149

PURGE DATA: Average Purge Rate = 0.49 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1138	~~0.92~~ 0.30	3.25	16.5	6.78	1431	9.49	NA	Clear
1143	0.65	6.5	16.4	6.64	1438	8.13	NA	Clear
1149	0.54	9.75	16.4	6.66	1436	6.93	NA	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: LR-104

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 26.60

Well Collection Sequence #: 75 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/22/2013 1145	VOC: N/A Other: N/A	16.4	6.66	1436	6.73	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/22/2013 0845

End of day: (Date/time) 7/22/2013 1625

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #20120508 3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: #08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.79	N/A	NTU std = 10.0	N/A	9.88	NTU std = 10.0
1004	N/A	NTU std = 1,000	N/A	1019	NTU std = 1,000
1427	N/A	µS std = 1,413	N/A	1387	µS std = 1,413
Cell Const: 0.486	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.486	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @24.8°C	N/A	7.03	pH std = 6.98 @25.4°C
4.01	N/A	pH std = 4.01 @24.8°C	N/A	4.08	pH std = 4.02 @34.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 80°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

Date: 7/22/2013 By: Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: LR-105

Sampler(s): Matt Stewart
Ward Herst

Top of Casing (ft, msl): 485.36

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: N/A

Casing Diameter (inches): 2

Initial Water Level (feet): 30.52

One Casing Volume (gal): 1.21

Initial Water Level Previous Event (feet): 31.45

One Casing Volume Previous Event (gal): 1.06

Ground Water Elevation (ft, msl): 454.84

Total Volume Purged (gal): N/A

Ground Water Elevation Previous Event (ft, msl): 453.91

Purged Dry?: Yes — No —

Well Total Depth (feet): 37.96

Water Level after Purge (feet): N/A

Well Total Depth Previous Event (feet): 37.96

Date/Time Completed: N/A

PURGE DATA: 37.96 - 30.52 = 7.44 @ 70 x 0.163 = 1.21

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
	Bend in pvc casing. Unable to push Waterra past bend.							
	Unable to obtain a sample.							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: LR-105

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): N/A

Well Collection Sequence #: N/A of N/A

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
N/A	VOC: / Other:						N/A

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) N/A

End of day: (Date/time) N/A

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: N/A

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: N/A

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
N/A	N/A	NTU std = 0.02	N/A	N/A	NTU std = 0.02
N/A	N/A	NTU std = 10.0	N/A	N/A	NTU std = 10.0
N/A	N/A	NTU std = 1,000	N/A	N/A	NTU std = 1,000
N/A	N/A	µS std = 1,413	N/A	N/A	µS std = 1,413
Cell Const: N/A	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: N/A	Cell Const Range: 0.45 - 0.50
N/A	N/A	pH std = — @ — °C	N/A	N/A	pH std = — @ — °C
N/A	N/A	pH std = — @ — °C	N/A	N/A	pH std = — @ — °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: N/A

Sample Characteristics: N/A

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) ___ or NO ___ Full Suite Collected YES ___ or (NO) ___

Sample Device Left in Well YES ___ or (NO) ___

Bend in pvc casing. Unable to push ~~bero~~ (not) waterra past bend. Unable to purge and sample well

Date: 7/17/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: MW-102
Sampler(s): Ward Herst
Jon Wilkinson

Top of Casing (ft, msl) 447.90

PURGE INFORMATION:

Method of Well Purge: ~~Waterra~~ Polyethylene Bailer
Date/Time Initiated: N/A
Initial Water Level (feet): 15.24
Initial Water Level Previous Event (feet): 20.17
Ground Water Elevation (ft, msl): 432.66
Ground Water Elevation Previous Event (ft, msl): 427.73
Well Total Depth (feet): 20.80
Well Total Depth Previous Event (feet): 22.80

Dedicated Equipment: Yes X No ✓
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): 0.06
Total Volume Purged (gal): Ø
Purged Dry?: Yes N/A No N/A
Water Level after Purge (feet): N/A
Date/Time Completed: N/A

PURGE DATA:

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
	Due to historically low available volume -							
	Sample collected without purging							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: MW-102

Sampling Method: Polyethylene Bailer (Waterra)

Dedicated: Yes X No ✓

Water Level @ Sampling (ft): 15.84

Well Collection Sequence #: 39 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/15/2013 1110	VOC: N/A Other: N/A	21.2	6.96	1544	135.7	N/A	Light tan

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/15/2013 0925

End of day: (Date/time) 7/15/2013 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #2012 05083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
9.80	N/A	NTU std = 10.0	N/A	9.82	NTU std = 10.0
999.6	N/A	NTU std = 1,000	N/A	1016	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1385	µS std = 1,413
Cell Const: 0.479	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.479	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @22.4 °C	N/A	7.00	pH std = 6.98 @34.0 °C
4.01	N/A	pH std = 4.01 @22.2 °C	N/A	4.05	pH std = 4.02 @33.9 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 85°F

Sample Characteristics: Lt. tan

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ - 9 bottles

Sample Device Left in Well YES ___ or NO ✓ collect as grab due to historically low volume

Date: 7/15/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: MW-103

Sampler(s): Wes Herst
Jon Wilkinson

Top of Casing (ft, msl) (JW) ~~437.47~~ 438.85

PURGE INFORMATION:

Method of Well Purge: ~~Waterra~~ Poly Bailer

Dedicated Equipment: Yes X No ✓

Date/Time Initiated: 7/15/2013 1126

Casing Diameter (inches): 2

Initial Water Level (feet): 6.59

One Casing Volume (gal): 1.28 gal

Initial Water Level Previous Event (feet): N/A

One Casing Volume Previous Event (gal): N/A

Ground Water Elevation (ft, msl): (JW) ~~430.88~~ 432.26

Total Volume Purged (gal): 2.25 gallons

Ground Water Elevation Previous Event (ft, msl): N/A

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 14.43

Water Level after Purge (feet): 6.59

Well Total Depth Previous Event (feet): 14.17

Date/Time Completed: 7/15/2013 1144

PURGE DATA:

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1140	N/A	0.75	18.2	6.84	956	138.9	N/A	Lt. tan
1142	N/A	1.5	17.3	6.92	917	203.1	N/A	Lt tan
1144	N/A	2.25	17.3	6.96	914	244.5	N/A	Lt. tan

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: MW-103

Sampling Method: Poly bailer ~~Waterra~~

Dedicated: Yes X No ✓

Water Level @ Sampling (ft): 6.59

Well Collection Sequence #: 40 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/15/2013 1144	VOC: N/A Other: N/A	17.3	6.96	914	244.5	N/A	Lt. tan

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/15/2013 0925

End of day: (Date/time) 7/15/2013 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508B3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
9.80	N/A	NTU std = 10.0	N/A	9.82	NTU std = 10.0
999.6	N/A	NTU std = 1,000	N/A	1016	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1385	µS std = 1,413
Cell Const: 0.479	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.479	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @23.4°C	N/A	7.00	pH std = 6.98 @34.0°C
4.01	N/A	pH std = 4.01 @22.2°C	N/A	4.05	pH std = 4.02 @33.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 85°F

Sample Characteristics: Lt. tan

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ___ or NO ✓

Date: 7/15/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: MW-104

Sampler(s): Matt Stewart
Ward Hearst

Top of Casing (ft, msl) 440.91

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/16/13 1316

Casing Diameter (inches): 2

Initial Water Level (feet): 8.22

One Casing Volume (gal): 1.75

Initial Water Level Previous Event (feet): 12.74

One Casing Volume Previous Event (gal): 0.54

Ground Water Elevation (ft, msl): 432.69

Total Volume Purged (gal): 3.00

Ground Water Elevation Previous Event (ft, msl): 428.17

Purged Dry?: Yes No X

Well Total Depth (feet): 18.98

Water Level after Purge (feet): 8.58

Well Total Depth Previous Event (feet): 18.98

Date/Time Completed: 7/16/13 1325

PURGE DATA: 18.98 - 8.22 = 10.76 x 0.163 = 1.75 ÷ 2 = 0.88

Average Purge Rate 0.33 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1319	0.20	1.00	17.6	6.77	1340	428.1	N/A	Orange, Slight Septic Odor
1322	0.33	2.00	18.0	6.76	1292	176.3	N/A	Orange, Slight Septic Odor
1325	0.33	3.00	18.3	6.77	1281	287.8	N/A	~~Orange~~, Slight Septic Odor Gray

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: MW-104

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 8.58

Well Collection Sequence #: 48 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1325 7/16/13	VOC: ~~Elevation~~ 0.33 gal/min Other:	18.3	6.77	1281	287.8	N/A	Gray, Slight Septic Odo.

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/16/13 0700

End of day: (Date/time) 7/16/13 1620

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.19	NTU std = 0.02
9.96	N/A	NTU std = 10.0	N/A	9.84	NTU std = 10.0
998.4	N/A	NTU std = 1,000	N/A	996.1	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1399	µS std = 1,413
Cell Const: 0.476	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.476	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.8°C	N/A	7.02	pH std = 6.98 @34.1 °C
4.01	N/A	pH std = 4.01 @27.0°C	N/A	4.05	pH std = 4.02 @34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 95°F

Sample Characteristics: ~~Clear~~, (Gray) orange, Slight Septic Odo.

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/16/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: MW-1204
Sampler(s): Matt Stewart

Top of Casing (ft, msl): ~~440.04~~ 485.53

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/11/13 1350
Initial Water Level (feet): 27.60
Initial Water Level Previous Event (feet): 29.05
Ground Water Elevation (ft, msl): ~~413.31~~ 457.93
Ground Water Elevation Previous Event (ft, msl): ~~414.86~~ 456.48
Well Total Depth (feet): 171.22
Well Total Depth Previous Event (feet): top of pump: 171.22

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (ml): 4650
Purged Dry?: Yes No X
Water Level after Purge (feet): 30.36
Date/Time Completed: 7/11/13 1410

PURGE DATA: 6 discharge, 6 refill, 60 psi
Average Purge Rate = 233 mL/min

Time	Purge Rate (ml/min)	Cumulative Volume (ml)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1358	250	2000	21.1	6.84	1322	7.32	29.51 MS ~~27.60~~	Clear, Septic Odor
1401	217	2650	20.9	6.81	1275	6.33	29.78	Clear, Septic Odor
1404	217	3300	21.0	6.79	1169	7.20	29.94	Clear, Septic Odor
1407	217	3950	21.0	6.78	1121	5.92	30.12	Clear, Septic Odor
1410	233	4650	21.0	6.78	1123	5.69	30.36	Clear, Septic Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: MW-1204

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 30.36

Well Collection Sequence #: 24 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1412 7/11/13	VOC: <100mL/min Other: 300mL/min	21.0	6.78	1123	5.69	N/A	Clear, Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/13 0710

End of day: (Date/time) 7/11/13 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340D

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 04490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.27	NTU std = 0.02
9.71	N/A	NTU std = 10.0	N/A	10.75	NTU std = 10.0
999.2	N/A	NTU std = 1,000	N/A	1075	NTU std = 1,000
1417	N/A	µS std = 1,413	N/A	1380	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.03	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.02	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear, Septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 4 of 9

Date: 7/11/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-100-KS
Sampler(s): Eric Hersh, JD Hersh, Matt Stewart, Jon Williamson

Top of Casing (ft, msl): 485.61

PURGE INFORMATION:

Method of Well Purge: Disposable Bailer
Date/Time Initiated: 09:36 7/22/2013
Initial Water Level (feet): 25.80
Initial Water Level Previous Event (feet): 25.97
Ground Water Elevation (ft, msl): 459.81
Ground Water Elevation Previous Event (ft, msl): 459.64
Well Total Depth (feet): 388.15
Well Total Depth Previous Event (feet): 388.15

Dedicated Equipment: Yes ____ No X
Casing Diameter (inches): 2
One Casing Volume (gal): 59.06 gal
One Casing Volume Previous Event (gal): 59.04
Total Volume Purged (gal): 71 gallons
Purged Dry?: Yes ✓ No ____
Water Level after Purge (feet): Dry @ Bottom of Well
Date/Time Completed: 7/22/2013 1600

PURGE DATA:

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1210	N/A	29.5	19.2	7.16	1153	7.40	N/A	Clear, Sediment
1511	N/A	59.25	19.6	7.06	1212	30.05	N/A	Clear, no odor
		~~89.75~~	Well	purged	dry @ 71 gallons - allow to recharge			

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION: Sample Point ID: PZ-100-KS

Sampling Method: Disposable Bailer Dedicated: Yes ____ No X

Water Level @ Sampling (ft): 50.81 Well Collection Sequence #: 76 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/23/2013 0745	VOC: N/A Other: N/A	17.6	7.53	1164	14.11	N/A	Clear

INSTRUMENT CALIBRATION DATA:

	Purging Event			Sampling Event		
	Start of day	End of day		Start of day	End of day	
Start of day: (Date/Time)	7/22/2013 0845	7/23/2013 0780				
End of day: (Date/time)	7/22/2013 1625	7/23/2013 0810				
Turbidity Meter:	HF MicroTPW					
Turbidity Meter S/N:	# 20110340O					
pH / Sp. Cond. Meter:	WTW pH/Cond 3400i					
pH / Sp. Cond. Meter S/N:	#09490969					
	0.04	0.14 N/A	NTU std = 0.02	0.02 N/A	0.01	NTU std = 0.02
	10.08	9.94 N/A	NTU std = 10.0	4.92 N/A	9.98	NTU std = 10.0
	994.5	1008 N/A	NTU std = 1,000	1001 N/A	998.8	NTU std = 1,000
	1413	1384 N/A	µS std = 1,413	1406 → 0.478 N/A	1408	µS std = 1,413
	Cell Const: 0.477	Cell Const: 0.472 N/A	Cell Const Range: 0.45 - 0.50	Cell Const: 0.478 N/A	Cell Const: 0.478	Cell Const Range: 0.45 - 0.50
	7.00	7.00 N/A	pH std = 7.00 @24.8°C 6.98 @35.4°C	6.99 N/A	7.01	pH std = 7.00 @26.9°C 6.99 @27.6°C
	4.01	4.04 N/A	pH std = 4.01 @4.0°C 4.02 @34.7°C	4.01 N/A	4.02	pH std = 4.01 @27.2°C 4.01 @27.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny 80°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ___ or NO ✓

Date: 7/23/2013 By: _____ Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

Herst & Associates, Inc. 4631 North St. Peters Parkway, St. Charles, MO 63304 (636) 939-9111 (636) 939-9757 fax

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-100-SD

Sampler(s): Matt Stewart

Top of Casing (ft, msl): 485.72

PURGE INFORMATION:

Method of Well Purge: Bladder Pump

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/9/13 1418

Casing Diameter (inches): 2

Initial Water Level (feet): 36.61

One Casing Volume (gal): N/A

Initial Water Level Previous Event (feet): 35.63

One Casing Volume Previous Event (gal): N/A

Ground Water Elevation (ft, msl): 449.11

Total Volume Purged (mL): 3150

Ground Water Elevation Previous Event (ft, msl): 450.09

Purged Dry?: Yes No X

Well Total Depth (feet): Top of Pump= 96.48

Water Level after Purge (feet): 43.65

Well Total Depth Previous Event (feet): Top of Pump = 96.48

Date/Time Completed: 7/9/13 1430

PURGE DATA: Discharge 6, Refill 6, PSI 50 Average Purge Rate = 263mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1421	333	1000	19.2	7.08	593	3.23	39.49	Clear, No Odor
1424	267	1800	19.0	7.03	597	3.11	41.27	Clear, No Odor
1427	233	2500	19.5	7.02	597	4.29	42.41	Clear, No Odor
1430	217	3150	19.4	7.01	594	3.69	43.65	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-100-SD

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 36.61

Well Collection Sequence #: 7 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1432 ~~7/9/13~~ 7/9/13	VOC: <100ml/min Other: 300ml/min	19.4	7.01	594	3.69	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/9/13 0820

End of day: (Date/time) 7/9/13 1530

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 2011 03400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.03	N/A	NTU std = 0.02	N/A	0.08	NTU std = 0.02
10.05	N/A	NTU std = 10.0	N/A	9.97	NTU std = 10.0
998.7	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1402	N/A	µS std = 1,413	N/A	1374	µS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @29.2°C	N/A	7.00	pH std = 6.98 @34.9°C
4.01	N/A	pH std = 4.01 @28.8°C	N/A	4.04	pH std = 4.02 @34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 95°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO

Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO

4 of 9

Date: 7/9/13 By: Matt Stewart MaH Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-100-SS
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 485.75

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/9/13 1321
Initial Water Level (feet): 34.15
Initial Water Level Previous Event (feet): 34.91
Ground Water Elevation (ft, msl): ~~452.00~~ 451.60
Ground Water Elevation Previous Event (ft, msl): 450.84
Well Total Depth (feet): Top of Pump= 89.25
Well Total Depth Previous Event (feet): Top of Pump = 89.25

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (mL): 3650
Purged Dry?: Yes No X
Water Level after Purge (feet): 41.45
Date/Time Completed: 7/9/13 1334

PURGE DATA: 6 discharge, 6 refill, 47.5 psi Average Purge Rate = 281 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1325	250	1000	18.9	6.90	774	7.86	36.78	Clear, No Odor
1328	317	1950	18.8	6.88	769	5.13	38.30	Clear, No Odor
1331	317	2900	18.9	6.88	774	4.42	40.00	Clear, No Odor
1334	250	3650	19.0	6.88	773	3.35	41.45	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-100-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 41.45

Well Collection Sequence #: 5 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1336 7/9/13	VOC: 100ml/min Other: 300 ml/min	19.0	6.88	773	3.35	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/9/13 0820

End of day: (Date/time) 7/9/13 1530

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340o

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.03	N/A	NTU std = 0.02	N/A	0.08	NTU std = 0.02
10.05	N/A	NTU std = 10.0	N/A	9.97	NTU std = 10.0
998.7	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1402	N/A	µS std = 1,413	N/A	1374	µS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @29.2°C	N/A	7.00	pH std = 6.98 @34.9°C
4.01	N/A	pH std = 4.01 @29.8°C	N/A	4.04	pH std = 4.02 @34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 90°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/9/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-101-SS
Sampler(s): Ward Herst
Jon Wilkinson

Top of Casing (ft, msl): 491.26

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/10/2013 1517
Initial Water Level (feet): 57.95
Initial Water Level Previous Event (feet): 51.76
Ground Water Elevation (ft, msl): 433.31
Ground Water Elevation Previous Event (ft, msl): 439.50
Well Total Depth (feet): 155.61
Well Total Depth Previous Event (feet): 155.61

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 15.92
One Casing Volume Previous Event (gal): 16.93
Total Volume Purged (gal): 9 gallons
Purged Dry?: Yes ✓ No
Water Level after Purge (feet): Dry @ Bottom of Well
Date/Time Completed: 7/10/2013 1532

PURGE DATA: Average Purge Rate = 0.60 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1530	0.62	9	30.6	6.67	1747	19.98	N/A	Clear; septic odor
	Well purged dry @ 9 gallons - allow to recharge							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-101-SS

Sampling Method: Waterra + Bailer

Dedicated: Yes X No

Water Level @ Sampling (ft): 58.48

Well Collection Sequence #: 20 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/11/2013 0940	VOC: N/A Other: N/A	32.9	6.50	1694	23.73	N/A	Cloudy

INSTRUMENT CALIBRATION DATA:

	Purging Event			Sampling Event		
	Start of day	End of day		Start of day	End of day	
Start of day: (Date/Time)	7/10/2013 0715	7/11/2013 0710				
End of day: (Date/time)	7/10/2013 1615	7/11/2013 1730				
	0.02	0.04 ~~N/A~~	NTU std = 0.02	0.02 ~~N/A~~	0.16	NTU std = 0.02
	9.91	9.78 ~~N/A~~	NTU std = 10.0	9.94 ~~N/A~~	10.03	NTU std = 10.0
	995.1	1006 ~~N/A~~	NTU std = 1,000	1000 ~~N/A~~	1023	NTU std = 1,000
	1407	1374 ~~N/A~~	µS std = 1,413	1416 ~~N/A~~	1395	µS std = 1,413
	Cell Const: 0.477	Cell Const: 0.477 ~~N/A~~	Cell Const Range: 0.45 - 0.50	Cell Const: 0.483 ~~N/A~~	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
	6.99	7.25 ~~N/A~~	pH std = 6.99 @ 20.5 °C	7.01 ~~N/A~~	7.13	pH std = 6.99 @ 20.9 °C
	4.01	4.26 ~~N/A~~	pH std = 4.01 @ 20.9 °C	4.01 ~~N/A~~	4.12	pH std = 4.01 @ 20.9 °C

6.99 @ 20.2°C
4.01 @ 20.1°C
7.01 @ 22.6°C
4.01 @ 24.2°C

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120503

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 80°F

Sample Characteristics: Cloudy

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ___ or NO ✓

USEPA collects split - Rads, VOCs, metals

Date: 7/11/2013 By: _____ Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-102R-SS

Sampler(s): Jared Herst
Joe Wilkinson

Top of Casing (ft, msl): 485.62

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/12/13 1320

Casing Diameter (inches): 2

Initial Water Level (feet): 25.12

One Casing Volume (gal): 10.74

Initial Water Level Previous Event (feet): 28.59

One Casing Volume Previous Event (gal): 10.17

Ground Water Elevation (ft, msl): 460.50

Total Volume Purged (gal): 10.25 gallons

Ground Water Elevation Previous Event (ft, msl): 457.03

Purged Dry?: Yes ✓ No

Well Total Depth (feet): ~~91.04~~ 91.04

Water Level after Purge (feet): Dry

Well Total Depth Previous Event (feet): 91.04

Date/Time Completed: 7/12/2013 1352

PURGE DATA: Average Purge Rate = 0.43 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1389	0.55	5.5	20.4	7.45	999	16.91	NIA	Clear
1352	0.34	10.25	20.7	7.65	902	317.5	NIA	Cloudy
	Well	purged	dry @	10.25	gallons · allow	to	recharge	

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-102R-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 57.19

Well Collection Sequence #: 69 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/19/2013 1015	VOC: N.A Other: N.A	6.99	23.7	953	52.40	N.A	Clear

INSTRUMENT CALIBRATION DATA:

	Purging Event			Sampling Event		
	Start of day	End of day		Start of day	End of day	
Start of day: (Date/Time)	7/12/2013 0700	7/19/2013 0715				
End of day: (Date/time)	7/12/2013 1515	7/19/2013 1345				
Turbidity Meter:	HF MicroTPW					
Turbidity Meter S/N:	# 20120503					
pH / Sp. Cond. Meter:	WTW pH/Cond 3400i					
pH / Sp. Cond. Meter S/N:	# 08200255					
	0.02	0.01 N/A	NTU std = 0.02	0.02 N/A	0.00	NTU std = 0.02
	9.75	9.07 N/A	NTU std = 10.0	9.95 N/A	9.74	NTU std = 10.0
	993.6	1041 N/A	NTU std = 1,000	1001 N/A	1025	NTU std = 1,000
	1422	1389 N/A	µS std = 1,413	1404 N/A	1370	µS std = 1,413
	Cell Const: 0.485	Cell Const: 0.485 N/A	Cell Const Range: 0.45 - 0.50	Cell Const: 0.483 N/A	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
	7.02	7.74 N/A	pH std = 7.03 @16.4°C	6.99 N/A	6.99	pH std = 6.98 @35.0°C
	4.00	4.78 N/A	pH std = 4.00 @16.4°C	4.01 N/A	4.03	pH std = 4.02 @34.8°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, Breezy, 85°F

Sample Characteristics:

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 2 bottles

Sample Device Left in Well YES ✓ or NO ___

Date: 7/19/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-102-SS
Sampler(s): Jared Herst
Jon Wilkinson

Top of Casing (ft, msl): 483.90

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/12/13 1404
Initial Water Level (feet): 25.50
Initial Water Level Previous Event (feet): 27.54
Ground Water Elevation (ft, msl): 458.40
Ground Water Elevation Previous Event (ft, msl): 456.36
Well Total Depth (feet): 91.48
Well Total Depth Previous Event (feet): 91.48

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 10.75
One Casing Volume Previous Event (gal): 10.42
Total Volume Purged (gal): 9.5 gallons
Purged Dry?: Yes ✓ No
Water Level after Purge (feet): Dry
Date/Time Completed: 7/12/2013 1430

PURGE DATA: Average Purge Rate = 0.37 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1414	0.55	5.5	17.8	7.72	854	575.1	N/A	Cloudy/gray
1430	0.25	9.5	18.6	7.73	871	479.3	N/A	Gray

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-102-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 41.05

Well Collection Sequence #: 71 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/19/2013 1030	VOC: N/A Other: N/A	21.6	7.08	869	165.1	N/A	Clear to Lt. gray

INSTRUMENT CALIBRATION DATA:

	Purging Event		Sampling Event	
Start of day: (Date/Time)	7/12/2013 0700	7/19/2013 0715		
End of day: (Date/time)	7/12/2013 1515	7/19/2013 1345		
Turbidity Meter:	HF MicroTPW			
Turbidity Meter S/N:	# 20120503			
pH / Sp. Cond. Meter:	WTW pH/Cond 3400i			
pH / Sp. Cond. Meter S/N:	# 08200255			

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	~~0.01~~ N/A	NTU std = 0.02	~~0.02~~ N/A	0.00	NTU std = 0.02
9.75	~~9.87~~ N/A	NTU std = 10.0	~~9.95~~ N/A	9.74	NTU std = 10.0
993.6	~~1011~~ N/A	NTU std = 1,000	~~1001~~ N/A	1025	NTU std = 1,000
1422	~~1384~~ N/A	µS std = 1,413	~~1404~~ N/A	1370	µS std = 1,413
Cell Const: 0.485	Cell Const: ~~0.485~~ N/A	Cell Const 0.483 Range: 0.45 - 0.50	Cell Const: ~~0.485~~ N/A	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
7.02	~~7.74~~ N/A	pH std = 7.02 @20.6°C 7.03 @16.4°C	6.99 N/A	6.99	pH std = 6.99 @27.6°C 6.98 @35.0°C
4.00	~~4.78~~ N/A	pH std = 4.00 @21.0°C 4.00 @16.4°C	4.01 N/A	4.03	pH std = 4.01 @28.2°C 4.02 @34.8°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, Breezy, 85°F

Sample Characteristics: Clear to light gray

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

Date: 7/19/2013 By: Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-103-SS

Sampler(s): Matt Stewart Jo- Wilt
Ward Herst

Top of Casing (ft, msl): 483.56

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No ____

Date/Time Initiated: 7/16/13 1010

Casing Diameter (inches): 2

Initial Water Level (feet): 6.28

One Casing Volume (gal): 23.39

Initial Water Level Previous Event (feet): 9.45

One Casing Volume Previous Event (gal): 22.87

Ground Water Elevation (ft, msl): 477.28

Total Volume Purged (gal): 19.50

Ground Water Elevation Previous Event (ft, msl): 474.11

Purged Dry?: Yes X No ____

Well Total Depth (feet): 149.79

Water Level after Purge (feet): Dry @ bottom of well

Well Total Depth Previous Event (feet): 149.79

Date/Time Completed: 7/16/13 1037

PURGE DATA: 149.79 − 6.28 = 143.51 × 0.163 = 23.39 ÷ 2 = 11.70

Avg. Purge Rate = 0.72 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1026	0.75	12.00 ~~11.75~~	~~20.9~~ 20.7	6.30	1224	203.2	N/A	Gray, Septic Odor
1037	0.86 / 0.58	24.00 ~~23.50~~	21.6	6.48	1208	499.4	N/A	Gray, Septic Odor
		30.00 ~~35.25~~	Dry @ 19.50 gallons;			Flow to Recharge		

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-103-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 31.90

Well Collection Sequence #: 68 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/19/2013 0945	VOC: N/A Other: N/A	23.2	6.58	1494	110.1	N/A	Green; septic odor

INSTRUMENT CALIBRATION DATA:

	Purging Event			Sampling Event		
	Start of day	End of day		Start of day	End of day	
Start of day: (Date/Time)	7/16/2013 0700	7/19/2013 0715				
End of day: (Date/time)	7/16/2013 1620	7/19/2013 1345				
	0.02	0.19 ~~N/A~~	NTU std = 0.02	0.02 ~~N/A~~	0.00	NTU std = 0.02
	9.96	9.84 ~~N/A~~	NTU std = 10.0	9.95 ~~N/A~~	9.74	NTU std = 10.0
	998.4	996.1 ~~N/A~~	NTU std = 1,000	1001 ~~N/A~~	1025	NTU std = 1,000
	1409	1399 ~~N/A~~	µS std = 1,413	1404 ~~N/A~~	1370	µS std = 1,413
	Cell Const: 0.476	Cell Const: 0.476 ~~N/A~~	Cell Const Range: 0.45 - 0.50	Cell Const: 0.483 ~~N/A~~	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
	7.00	7.02 ~~N/A~~	pH std = 6.98 @34.1 °C (7.00 @ 26.8°C)	6.99 ~~N/A~~	6.99	pH std = 6.98 @35.0°C (6.99 @ 27.6°C)
	4.01	4.05 ~~N/A~~	pH std = 4.02 @34.3°C (4.01 @ 27.0°C)	4.01 ~~N/A~~	4.03	pH std = 4.02 @34.8°C (4.01 @ 28.1°C)

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 7/16 : 20110340 7/19 : 20120508 3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 7/16 : 09490969 7/19 : 08200255

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, Breezy 85°F, Humid LF soil odor

Sample Characteristics: Green; septic odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___ * VOAs effervesced - Sent unpreserved

Date: 7/19/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-104-KS
Sampler(s): Eric Hersh

Top of Casing (ft, msl): 483.95

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/18/13 08:58
Initial Water Level (feet): 19.12
Initial Water Level Previous Event (feet): 18.72
Ground Water Elevation (ft, msl): 464.83
Ground Water Elevation Previous Event (ft, msl): 465.23
Well Total Depth (feet): 409.26
Well Total Depth Previous Event (feet): 409.26

Dedicated Equipment: Yes ____ No X
Casing Diameter (inches): 2
One Casing Volume (gal): 63.6
One Casing Volume Previous Event (gal): 63.66
Total Volume Purged (gal): 97.5 gallons
Purged Dry?: Yes ____ No ✓
Water Level after Purge (feet): 44.81
Date/Time Completed: 7/18/13 13:01

PURGE DATA: Average Purge Rate = 0.41 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
10:11	0.45	32.5	20.5	6.14	777	3.44	NA	Clear
11:35	0.39	65	22.4	6.29	742	37.87	NA	Clear
12:53	0.42	97.5	22.2	6.36	736	22.66	NA	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-104-KS

Sampling Method: Waterra

Dedicated: Yes ____ No X

Water Level @ Sampling (ft): 44.81

Well Collection Sequence #: 64 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/10/2013 1301	VOC: N/A Other: N/A	22.2	6.36	736	22.66	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/2013 0645

End of day: (Date/time) 7/10/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20902109

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 10461290

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.14	NTU std = 0.02
10.09	N/A	NTU std = 10.0	N/A	10.25	NTU std = 10.0
991.3	N/A	NTU std = 1,000	N/A	997.0	NTU std = 1,000
1417	N/A	µS std = 1,413	N/A	1383	µS std = 1,413
Cell Const: 0.484	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.484	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @ 22.2 °C	N/A	6.85	pH std = 6.98 @ 24.5 °C
4.01	N/A	pH std = 4.01 @ 22.1 °C	N/A	4.12	pH std = 4.02 @ 24.5 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 90's

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES X or NO ___ Full Suite Collected YES X or NO ___ 9 bottles

Sample Device Left in Well YES ___ or NO X

Date: 7/18/13 By: Eric Herst Title: Environmental Specialist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-104-SD
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 483.51

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/11/13 1009
Initial Water Level (feet): 22.02
Initial Water Level Previous Event (feet): 22.05
Ground Water Elevation (ft, msl): 461.49
Ground Water Elevation Previous Event (ft, msl): 461.46
Well Total Depth (feet): Top of Pump= 120.50
Well Total Depth Previous Event (feet): Top of Pump = 120.50

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (mL): 4250
Purged Dry?: Yes No X
Water Level after Purge (feet): 24.88
Date/Time Completed: 7/11/13 1027

PURGE DATA: 6 discharge, 6 refill, 60 psi
Average Purge Rate = 236 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1015	250	1500	21.1	6.47	1369	5.60	24.04	Gray tint, ~~Thick~~ Septic Odor (MS)
1018	217	2150	20.9	6.44	1300	4.10	24.48	Gray tint, Septic Odor
1021	267	2950	21.4	6.42	1266	3.10	24.90	Gray tint, Septic Odor
1024	~~250~~ 217	3600	21.6	6.40	1252 ~~1252~~ (MS)	2.46	24.91	Gray tint, Septic Odor
1027	217	~~4250~~	21.4	6.39	1258	2.35	24.88	Gray tint, Septic Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-104-SD

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 24.88

Well Collection Sequence #: 21 of 76

Parameters: Annual: ___ Semi-Annual: ___ Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1029 7/11/13	VOC: 100mL/min Other: 300mL/min	21.4	6.39	1258	2.35	N/A	Gray tint, Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/13 0710

End of day: (Date/time) 7/11/13 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.27	NTU std = 0.02
9.71	N/A	NTU std = 10.0	N/A	10.75	NTU std = 10.0
999.2	N/A	NTU std = 1,000	N/A	1075	NTU std = 1,000
1417	N/A	µS std = 1,413	N/A	1380	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.03	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.02	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, light breeze, 70°F

Sample Characteristics: Gray tint, septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/11/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-104-SS
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 483.45

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/11/13 0919
Initial Water Level (feet): 19.98
Initial Water Level Previous Event (feet): 20.93
Ground Water Elevation (ft, msl): 463.47
Ground Water Elevation Previous Event (ft, msl): 462.52
Well Total Depth (feet): Top of Pump= 140.22
Well Total Depth Previous Event (feet): Top of Pump = 140.22

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (mL): 3550
Purged Dry?: Yes No X
Water Level after Purge (feet): 27.17
Date/Time Completed: 7/11/13 0935

PURGE DATA: discharge = 6, refill = 6, psi = 70 Average Purge Rate = 222 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
0926	214	1500	22.4	6.61	864	5.62	23.37	Clear, Septic Odor
0929	200	2100	22.4	6.64	867	3.13	24.48	Clear, Septic Odor
0932	233	2800	22.2	6.67	872	4.30	26.02	Clear, Septic Odor
0935	250	3550	22.1	6.69	871	4.71	27.17	Clear, Septic Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-104-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No ____

Water Level @ Sampling (ft): 27.17

Well Collection Sequence #: 19 of 76

Parameters: Annual: ___ Semi-Annual: ___ Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
0937 7/11/13	VOC: <100mL/min Other: 300mL/min	22.1	6.69	871	4.71	N/A	Clear, Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/13 0710

End of day: (Date/time) 7/11/13 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340B

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.27	NTU std = 0.02
9.71	N/A	NTU std = 10.0	N/A	10.75	NTU std = 10.0
999.2	N/A	NTU std = 1,000	N/A	1075	NTU std = 1,000
1417	N/A	µS std = 1,413	N/A	1380	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.03	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.02	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, Light Breeze, 70°F

Sample Characteristics: Clear, Septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO ___ Full Suite Collected (YES) or NO ___

Sample Device Left in Well (YES) or NO ___ 9 of 9

Industrial Air freshener blowing mist into the air in vicinity of well.

Date: 7/11/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-105-SS

Sampler(s): Matt Stewart

Top of Casing (ft, msl): 483.51

PURGE INFORMATION:

Method of Well Purge: Bladder Pump

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/12/13 0907

Casing Diameter (inches): 2

Initial Water Level (feet): 24.31

One Casing Volume (gal): N/A

Initial Water Level Previous Event (feet): 24.13

One Casing Volume Previous Event (gal): N/A

Ground Water Elevation (ft, msl): 459.20

Total Volume Purged (mL): 4300

Ground Water Elevation Previous Event (ft, msl): 459.38

Purged Dry?: Yes ____ No X

Well Total Depth (feet): Top of Pump=(mg) +5 144.81

Water Level after Purge (feet): 33.10

Well Total Depth Previous Event (feet): Top of Pump = 144.81

Date/Time Completed: 7/12/13 0922

PURGE DATA:

Average Purge Rate = 287 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
0913	292	~~1500~~ 1750	18.5	7.06	1055	15.07	28.85	Clear, No Odor
0916	333	2750	18.5	7.12	1041	14.99	30.50	Clear, No Odor
0919	250	3500	18.5	7.17	1029	10.13	31.61	Clear, No Odor
0922	267	~~4300~~ 4300	18.5	7.19	1032	11.71	~~33.10~~ 33.10 (mg)	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-105-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 33.10

Well Collection Sequence #: 31 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
0924 7/12/13	VOC: ≤100 mL/min Other: 300 mL/min	18.5	7.19	1032	11.71	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/12/13 0700

End of day: (Date/time) 7/12/13 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	9.89	NTU std = 10.0
997.0	N/A	NTU std = 1,000	N/A	1004	NTU std = 1,000
1423	N/A	µS std = 1,413	N/A	1428	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.02	N/A	pH std = 7.02 @20.6°C	N/A	7.02	pH std = 7.03 @16.4°C
4.00	N/A	pH std = 4.00 @21.0°C	N/A	4.04	pH std = 4.00 @16.4°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 75°F

Sample Characteristics: Clear, No odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO

Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO

9 of 9

Rad Replicate collected @ 0924 1 of 1

Date: 7/12/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-106-KS

Sampler(s): Eric Hest

Top of Casing (ft, msl) 464.20

PURGE INFORMATION:

Method of Well Purge: Waterra

Date/Time Initiated: 7/19/13 9:09

Initial Water Level (feet): 4.28

Initial Water Level Previous Event (feet): 4.28

Ground Water Elevation (ft, msl): 459.92

Ground Water Elevation Previous Event (ft, msl): 459.92

Well Total Depth (feet): 374.97

Well Total Depth Previous Event (feet): 374.97

Dedicated Equipment: Yes ____ No X

Casing Diameter (inches): 2

One Casing Volume (gal): 60.42 gallons

One Casing Volume Previous Event (gal): 60.42

Total Volume Purged (gal): 91.5 gallons

Purged Dry?: Yes ____ No ____

Water Level after Purge (feet): 36.90

Date/Time Completed: 7/19/13 13:20

PURGE DATA: 374.97 − 4.28 = 370.69 × 0.163 = 60.42 39.21

Average Purge Rate = 0.39 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
10:22	0.42	30.5	20.7	3.84	775	24.1	N/A	Clear
11:39	0.40	61.0	26.0	4.04	768	7.83	N/A	Clear
13:02	~~0.30~~ 0.37	91.5	21.7	4.20	763	2.24	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-106-KS

Sampling Method: Waterra

Dedicated: Yes ____ No X

Water Level @ Sampling (ft): 36.90

Well Collection Sequence #: 73 of 76

Parameters: Annual: ___ Semi-Annual: ___ Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/19/2013 1309	VOC: N/A Other: N/A	21.7	4.20	763	5.14	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/19/2013 0715

End of day: (Date/time) 7/19/2013 1345

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 2009021409

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 10461290

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
9.90	N/A	NTU std = 10.0	N/A	9.70	NTU std = 10.0
1004	N/A	NTU std = 1,000	N/A	996.4	NTU std = 1,000
1400	N/A	µS std = 1,413	N/A	1381	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @22.6°C	N/A	6.98	pH std = 6.98@35.8°C
4.01	N/A	pH std = 4.01 @20.2°C	N/A	4.02	pH std = 4.02@34.8°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 90's

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ~~✓~~ or NO ✓

Date: 7/19/13 By: Eric Herst Title: Env. Specialist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-106-SD
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 463.36

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/10/13 1123
Initial Water Level (feet): 13.37
Initial Water Level Previous Event (feet): 14.74
Ground Water Elevation (ft, msl): 449.99
Ground Water Elevation Previous Event (ft, msl): 448.62
Well Total Depth (feet): Top of Pump= 196.15
Well Total Depth Previous Event (feet): Top of Pump = 196.15

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (mL): 4400
Purged Dry?: Yes No X
Water Level after Purge (feet): 17.92
Date/Time Completed: 7/10/13 1139

PURGE DATA: 6 discharge, 6 refill, 105 psi Average Purge Rate = 275 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1130	286	2000	21.0	6.95	820	41.52	16.41	light grey, slight septic odor
1133	233	2700	20.9	6.94	827	37.34	16.91	" "
1136	283	3550	20.8	6.93	834	18.72	17.39	Clear, No Odor
1139	283	4400	20.8	6.94	837	12.30	17.92	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-106-SD

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 17.92

Well Collection Sequence #: 11 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
~~1111~~ 1141 7/10/13	VOC: <100mL/min Other: 300mL/min	20.8	6.94	(mS) ~~83~~ 837	12.30	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/13 0715

End of day: (Date/time) 7/10/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110 3400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.03	N/A	NTU std = 0.02	N/A	0.06	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	11.14	NTU std = 10.0
997.1	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1386	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @28.2°C	N/A	6.97	pH std = 6.99 @30.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.00	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Overcast, 80°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/10/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-106-SS

Sampler(s): Matt Stewart

Top of Casing (ft, msl): 462.71

PURGE INFORMATION:

Method of Well Purge: Bladder Pump

Date/Time Initiated: 7/10/13 1226

Initial Water Level (feet): 12.36

Initial Water Level Previous Event (feet): 13.55

Ground Water Elevation (ft, msl): 450.35

Ground Water Elevation Previous Event (ft, msl): 449.16

Well Total Depth (feet): Top of Pump= 161.20

Well Total Depth Previous Event (feet): Top of Pump = 161.20

Dedicated Equipment: Yes X No

Casing Diameter (inches): 2

One Casing Volume (gal): N/A

One Casing Volume Previous Event (gal): N/A

Total Volume Purged (mL): 3750

Purged Dry?: Yes No X

Water Level after Purge (feet): 19.61

Date/Time Completed: 7/10/13 1241

PURGE DATA:

Average Purge Rate = 250 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1232	250	1500	20.8	6.88	839	3.70	15.70	Clear, No Odor
1235	300	2400	20.8	6.90	851	6.12	17.21	Clear, No Odor
1238	167	2900	20.9	6.84	849	4.49	18.25	Clear, No Odor.
1241	283	3750	21.0	6.89	845	2.25	19.61	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-106-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 19.61

Well Collection Sequence #: 13 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1245 7/10/13	VOC: <100mL/min Other: 300mL/min	21.0	6.89	845	2.25	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/13 0715

End of day: (Date/time) 7/10/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.03	N/A	NTU std = 0.02	N/A	0.06	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	11.14	NTU std = 10.0
997.1	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1386	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @28.2°C	N/A	6.97	pH std = 6.99 @30.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.00	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Partly Sunny, 85°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO

Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO

9 of 9

Date: 7/10/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-107-SS
Sampler(s): Matt Stewart
Jon Wilkins

Top of Casing (ft, msl): 464.56

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/18/2013 1229
Initial Water Level (feet): 31.45
Initial Water Level Previous Event (feet): 36.00
Ground Water Elevation (ft, msl): 433.11
Ground Water Elevation Previous Event (ft, msl): 428.56
Well Total Depth (feet): 103.99
Well Total Depth Previous Event (feet): 103.99

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 11.82 gal
One Casing Volume Previous Event (gal): 11.08
Total Volume Purged (gal): 9.75 gallons
Purged Dry?: Yes ✓ No
Water Level after Purge (feet): Dry
Date/Time Completed: 7/18/2013 1243

PURGE DATA: Average Purge Rate = 0.70 gallons/minute

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1237	0.75	6	19.5	6.59	2240	5906	N/A	Clear
	Well purged dry @ 9.75 gallons - allow to recharge							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION: Sample Point ID: PZ-107-SS

Sampling Method: Waterra Dedicated: Yes X No

Water Level @ Sampling (ft): 31.88 Well Collection Sequence #: 72 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/19/2013 1210	VOC: N/A Other: N/A	21.1	6.65	2370	197.2	N/A	Lt. tea

INSTRUMENT CALIBRATION DATA:

	Purging Event			Sampling Event		
	Start of day	End of day		Start of day	End of day	
Start of day: (Date/Time)	7/18/2013 0645	7/19/2013 0715				
End of day: (Date/time)	7/18/2013 1575	7/19/2013 1345				
	0.02	0.09 ~~N/A~~	NTU std = 0.02	0.02 ~~N/A~~	0.00	NTU std = 0.02
	10.16	10.19 ~~N/A~~	NTU std = 10.0	9.95 ~~N/A~~	9.74	NTU std = 10.0
	1001	1005 ~~N/A~~	NTU std = 1,000	1001 ~~N/A~~	1025	NTU std = 1,000
	1414	1402 ~~N/A~~	µS std = 1,413	1404 ~~N/A~~	1370	µS std = 1,413
	Cell Const: 0.467	Cell Const: ~~N/A~~ 0.467	Cell Const Range: 0.45 - 0.50	Cell Const: 0.463 ~~N/A~~	Cell Const: 0.463	Cell Const Range: 0.45 - 0.50
	7.00	7.01 ~~N/A~~	pH std = 6.98 @34.5°C 7.00 @ 22.1°C	6.99 ~~N/A~~	6.99	pH std = 6.98 @35.0°C 6.99 @ 22.6°C
	4.01	4.03 ~~N/A~~	pH std = 4.02 @34.5°C 4.01 @ 29.1°C	4.01 ~~N/A~~	4.03	pH std = 4.02 @34.8°C 4.01 @ 28.2°C

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # BD1205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: # 08200255

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, Breezy, 85°F

Sample Characteristics: Lt. tea

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 10 bottles

Sample Device Left in Well YES ✓ or NO ___ Red replicate collected here

collect DUP 08 here - 9 bottles

* VOAs effervesced; Send unpreserved ✓

Date: 7/19/2013 By: [signature] Title: Senior Cleanup Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-109-SS

Sampler(s): Matt Stewart

Top of Casing (ft, msl) ~~458.55~~ 458.56

PURGE INFORMATION:

Method of Well Purge: Bladder Pump

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/10/13 1414

Casing Diameter (inches): 2

Initial Water Level (feet): 35.05

One Casing Volume (gal): N/A

Initial Water Level Previous Event (feet): 29.23

One Casing Volume Previous Event (gal): N/A

Ground Water Elevation (ft, msl): 423.51

Total Volume Purged (mL): 3600

Ground Water Elevation Previous Event (ft, msl): 429.33

Purged Dry?: Yes No X

Well Total Depth (feet): Top of Pump= 131.18

Water Level after Purge (feet): 42.76

Well Total Depth Previous Event (feet): Top of Pump = 131.18

Date/Time Completed: 7/10/13 1428

PURGE DATA: 6 discharge, 6 refill, 65 psi Average Purge Rate = 257 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1419	300	1500	21.9	6.93	792	5.36	38.86	Clear, No Odor
1422	233	2200	22.1	6.91	795	5.07	40.09	Clear, No Odor
1425	233	2900	22.0	6.91	794	4.95	41.41	Clear, No Odor
1428	233	3600	21.9	6.91	795	5.58	42.76	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-109-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 42.76

Well Collection Sequence #: 16 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1430 7/10/13	VOC: 100 ml/min Other: 300 ml/min	21.9	6.91	795	5.58	N/A	Clear, No odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/13 0715

End of day: (Date/time) 7/10/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.03	N/A	NTU std = 0.02	N/A	0.06	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	11.14	NTU std = 10.0
997.1	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1386	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @25.2°C	N/A	6.97	pH std = 6.99 @32.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.00	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Partly Sunny, 90°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/10/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-110-SS
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 461.15

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/9/13 1159
Initial Water Level (feet): 28.65
Initial Water Level Previous Event (feet): 33.08
Ground Water Elevation (ft, msl): 432.50
Ground Water Elevation Previous Event (ft, msl): 428.07
Well Total Depth (feet): Top of Pump= 107.11
Well Total Depth Previous Event (feet): Top of Pump = 107.11

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (mL): 3750
Purged Dry?: Yes No X
Water Level after Purge (feet): 32.51
Date/Time Completed: 7/9/13 1211

PURGE DATA: 6 discharge, 6 refill, 55 psi
Average Purge Rate = 312 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1202	333	1000	18.5	6.61	1927	8.99	30.77	Clear, No Odor
1205	300	1900	18.5	6.59	1933	4.51	31.47	Clear, No Odor
1208	317	2850	18.5	6.58	1935	3.51	31.98	Clear, No odor
1211	300	3750	18.3	6.58	1932	3.18	32.51	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-110-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 32.51

Well Collection Sequence #: 3 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1213 7/9/13	VOC: <100 mL/min Other: 300 mL/min	18.3	6.58	1932	3.18	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/9/13 0820

End of day: (Date/time) 7/9/13 1530

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340o

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.03	N/A	NTU std = 0.02	N/A	0.08	NTU std = 0.02
10.05	N/A	NTU std = 10.0	N/A	9.97	NTU std = 10.0
998.7	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1402	N/A	µS std = 1,413	N/A	1374	µS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @ 29.2 °C	N/A	7.00	pH std = 6.98 @ 34.9 °C
4.01	N/A	pH std = 4.01 @ 28.8 °C	N/A	4.04	pH std = 4.02 @ 34.3 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, ~~85°F~~ 90°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

FB @ PZ-110-SS collected @ 1140 4 of 4

MS/MSD collected here 3 of 3

Date: 7/9/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-111-KS

Sampler(s): Eric Herst

Top of Casing (ft, msl): 465.56

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes ____ No X

Date/Time Initiated: 7-17-13 09:16

Casing Diameter (inches): 2

Initial Water Level (feet): 8.72

One Casing Volume (gal): 59.64

Initial Water Level Previous Event (feet): 8.74

One Casing Volume Previous Event (gal): 59.63

Ground Water Elevation (ft, msl): 456.84

Total Volume Purged (gal): 90 gallons

Ground Water Elevation Previous Event (ft, msl): 456.82

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 374.59

Water Level after Purge (feet): 30.89

Well Total Depth Previous Event (feet): 374.59

Date/Time Completed: 7/17/2013 1306

PURGE DATA: Average Purge Rate = 0.39 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
10:38	0.37	30	19.0	9.21	1753	8.43	NM	Clear
11:54	0.39	60	20.7	9.28	1780	9.94	NM	Clear
13:06	0.42	90	19.0	9.26	1776	10.75	NM	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-111-KS

Sampling Method: Waterra

Dedicated: Yes ____ No X

Water Level @ Sampling (ft): 30.89

Well Collection Sequence #: 5th of 7th

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/17/2013 1309	VOC: N/A Other: N/A	19.0	9.26	1776	10.75	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/17/13 0630

End of day: (Date/time) 7/17/2013 1545

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #20090209

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 10461290

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.89	N/A	NTU std = 10.0	N/A	10.04	NTU std = 10.0
997.7	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1426	µS std = 1,413
Cell Const: 0.497	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.497	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.2°C	N/A	8.66	pH std = 6.98 @34.2°C
4.01	N/A	pH std = 4.01 @26.2°C	N/A	5.38	pH std = 4.02 @34.2°C

↳ replace pH tip after cal check

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 80°s, brief shower

Sample Characteristics: clear -

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES X or NO ___ Full Suite Collected YES X or NO ___ 9 bottles

Sample Device Left in Well YES ___ or NO X

Date: 7/17/13 By: Eric Herst Title: Env. Specialist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-111-SD
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 466.46

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/9/13 1026
Initial Water Level (feet): 33.13
Initial Water Level Previous Event (feet): 38.93
Ground Water Elevation (ft, msl): 433.33
Ground Water Elevation Previous Event (ft, msl): 427.53
Well Total Depth (feet): Top of Pump= 196.81
Well Total Depth Previous Event (feet): Top of Pump = 196.81

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (mL): 3650
Purged Dry?: Yes No X
Water Level after Purge (feet): 40.84
Date/Time Completed: 7/9/13 1040

PURGE DATA: 12 refill, 8 Discharge, 100 psi

Average Purge Rate = 261 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1031	300	1500	19.2	6.91	796	7.37	36.85	Clear, No Odor
1034	200	2100	19.4	6.92	798	6.69	37.68	Clear, No Odor
1037	267	2900	19.5	6.93	795	6.59	39.43	Clear No Odor
1040	250	3650	19.4	6.94	791	5.89	40.84	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-111-SD

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 40.84

Well Collection Sequence #: 1 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1042 7/9/13	VOC: 100 ml/min Other: 300 ml/min	19.4	6.94	791	5.89	Clear	No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/9/13 0820

End of day: (Date/time) 7/9/13 1530

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110240o

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.07	N/A	NTU std = 0.02	N/A	0.08	NTU std = 0.02
10.05	N/A	NTU std = 10.0	N/A	9.97	NTU std = 10.0
998.7	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1402	N/A	µS std = 1,413	N/A	1374	µS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @29.2°C	N/A	7.00	pH std = 6.98 @34.9°C
4.01	N/A	pH std = 4.01 @29.8°C	N/A	4.04	pH std = 4.02 @34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Partly Sunny, 80°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 7 of 7 Test America

2 of 2 Eberline

Date: 7/9/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-112-AS

Sampler(s): Wood Herst
Jon Wilkinson

Top of Casing (ft, msl): 462.50 – Apr 2013
462.29 – Jul 2013

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/9/2013 1437

Casing Diameter (inches): 2

Initial Water Level (feet): 29.05

One Casing Volume (gal): 1.59

Initial Water Level Previous Event (feet): 34.83

One Casing Volume Previous Event (gal): 0.65

Ground Water Elevation (ft, msl): ~~433.45~~ 433.24

Total Volume Purged (gal): 3 gallons

Ground Water Elevation Previous Event (ft, msl): 427.61

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 38.83

Water Level after Purge (feet): 28.90

Well Total Depth Previous Event (feet): 38.83

Date/Time Completed: 7/9/2013 1446

PURGE DATA: Average Purge Rate = 0.33 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1440	0.33	1	18.3	6.83	2460	13.26	N/A	Clear
1443	0.33	2	18.3	6.84	2480	10.65	N/A	Clear
1446	0.33	3	18.2	6.81	2490	8.96	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-112-AS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 28.90

Well Collection Sequence #: 8 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/9/2013 1446	VOC: N/A Other: N/A	18.2	6.81	2490	8.96	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/9/2013 0820

End of day: (Date/time) 7/9/2013 1530

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 201205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 09200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
9.85	N/A	NTU std = 10.0	N/A	10.13	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1011	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1403	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @29.2°C	N/A	7.27	pH std = 6.98 @34.7°C
4.01	N/A	pH std = 4.01 @28.8°C	N/A	4.32	pH std = 4.02 @34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 90's

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

USEPA collect split - Rads + VOCs

Date: 7/9/2013 By: Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-113-AD
Sampler(s): Ward Herst
Jon Williamson

Top of Casing (ft, msl): 461.54

PURGE INFORMATION:

Method of Well Purge: Waterra
Dedicated Equipment: Yes X No
Date/Time Initiated: 7/10/2013 1230
Casing Diameter (inches): 2
Initial Water Level (feet): 28.23
One Casing Volume (gal): 13.35gal
Initial Water Level Previous Event (feet): 33.79
One Casing Volume Previous Event (gal): 12.44
Ground Water Elevation (ft, msl): 433.31
Total Volume Purged (gal): 21 gallons
Ground Water Elevation Previous Event (ft, msl): 427.75
Purged Dry?: Yes ____ No ✓
Well Total Depth (feet): 110.12
Water Level after Purge (feet): 28.18
Well Total Depth Previous Event (feet): 110.12
Date/Time Completed: 7/10/2013 1302

PURGE DATA: Average Purge Rate = 0.66 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1240	0.70	7	17.2	6.92	3.47mS	8.79	N/A	Clear
1251	0.64	14	17.4	6.93	3490	9.27	N/A	Clear
1302	0.64	21	17.2	6.95	3410	6.50	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-113-AD

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 28.18

Well Collection Sequence #: 14 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/10/2013 1302	VOC: N/A Other: N/A	17.2	6.95	3410	6.50	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/2013 0715

End of day: (Date/time) 7/10/2013 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508S

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.04	NTU std = 0.02
9.91	N/A	NTU std = 10.0	N/A	9.78	NTU std = 10.0
995.1	N/A	NTU std = 1,000	N/A	1006	NTU std = 1,000
1407	N/A	µS std = 1,413	N/A	1874	µS std = 1,413
Cell Const: 0.477	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.477	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @28.2°C	N/A	7.25	pH std = 6.99 @30.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.26	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Partly Cloudy, 85°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

Collect DUP02 - 9 bottles

USGPA collects split - Rads, VOCs, + metals

Date: 7/10/2013 By: Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-113-AS

Sampler(s): Ward Herst
Ja Wilkinson

Top of Casing (ft, msl) 461.40

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/10/2013 1337

Casing Diameter (inches): 2

Initial Water Level (feet): 28.13

One Casing Volume (gal): 1.81

Initial Water Level Previous Event (feet): 33.70

One Casing Volume Previous Event (gal): 0.89

Ground Water Elevation (ft, msl): 433.27

Total Volume Purged (gal): 3 gallons

Ground Water Elevation Previous Event (ft, msl): 427.70

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 39.22

Water Level after Purge (feet): 28.15

Well Total Depth Previous Event (feet): 39.22

Date/Time Completed: 7/10/2013 1400

PURGE DATA: Average Purge Rate = 0.13 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1343	0.17	1	19.9	6.78	1456	184.6	N.A	Cloudy
1352	0.11	2	19.0	6.77	1418	36.04	N.A	Clear
1400	0.12	3	19.1	6.75	1448	15.91	N.A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-113-AS

Sampling Method: Waterra

Dedicated: Yes X No ____

Water Level @ Sampling (ft): 28.15

Well Collection Sequence #: 15 of 76

Parameters: Annual: ___ Semi-Annual: ___ Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/10/2013 1400	VOC: N/A Other: N/A	19.1	6.75	1448	15.91	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/2013 0715

End of day: (Date/time) 7/10/2013 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 231205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.04	NTU std = 0.02
9.91	N/A	NTU std = 10.0	N/A	9.78	NTU std = 10.0
995.1	N/A	NTU std = 1,000	N/A	1006	NTU std = 1,000
1407	N/A	µS std = 1,413	N/A	1374	µS std = 1,413
Cell Const: 0.477	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.477	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @28.2°C	N/A	7.25	pH std = 6.99 @30.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.26	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Mostly Cloudy, 80°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ - 10 bottles

Sample Device Left in Well YES ✓ or NO ___ Total Rads Duplicate #3 collected here

Date: 7/10/2013 By: _____ Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-113-SS

Sampler(s): Ward Hersh
Jon Wilkinson

Top of Casing (ft, msl): 461.77

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/10/2013 1421

Casing Diameter (inches): 2

Initial Water Level (feet): 28.39

One Casing Volume (gal): 21.53

Initial Water Level Previous Event (feet): 33.91

One Casing Volume Previous Event (gal): 20.63

Ground Water Elevation (ft, msl): 433.38

Total Volume Purged (gal): 19 gallons

Ground Water Elevation Previous Event (ft, msl): 427.86

Purged Dry?: Yes ✓ No

Well Total Depth (feet): 160.47

Water Level after Purge (feet): Dry @ Bottom of Well

Well Total Depth Previous Event (feet): 160.47

Date/Time Completed: 7/10/2013 1447

PURGE DATA: Average Purge Rate = 0.73 gallons

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1436	0.73	11	17.3	7.53	522	290.4	N/A	Cloudy
		22	Well	purged	dry @ 19 gallons			
		33						

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-113-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 28.44

Well Collection Sequence #: 18 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/11/2013 0850	VOC: ~~N/A~~ Other: ~~N/A~~	19.4	7.62	653	122.0	N/A	Cloudy

INSTRUMENT CALIBRATION DATA:

	Purging Event			Sampling Event		
	Start of day	End of day		Start of day	End of day	
Start of day: (Date/Time)	7/10/2013 0715	7/11/2013 0710				
End of day: (Date/time)	7/10/2013 1615	7/11/2013 1730				
Turbidity Meter:	HF MicroTPW					
Turbidity Meter S/N:	# 20120508 3					
	0.02	0.04 ~~N/A~~	NTU std = 0.02	0.02 ~~N/A~~	0.16	NTU std = 0.02
	9.91	9.78 ~~N/A~~	NTU std = 10.0	9.94 ~~N/A~~	10.03	NTU std = 10.0
	995.1	1006 ~~N/A~~	NTU std = 1,000	1000 ~~N/A~~	1023	NTU std = 1,000
	1407	1374 ~~N/A~~	µS std = 1,413	1416 ~~N/A~~	1395	µS std = 1,413
	Cell Const: 0.477	Cell Const: 0.477 ~~N/A~~	Cell Const Range: 0.45 - 0.50	Cell Const: 0.483 ~~N/A~~	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
	6.99	7.25 ~~N/A~~	pH std = 6.99 @ 28.2°C 6.99 @ 30.5°C	7.01 ~~N/A~~	7.13	pH std = 6.99 @ 22.6°C 6.99 @ 28.9°C
	4.01	4.26 ~~N/A~~	pH std = 4.01 @ 29.1°C 4.01 @ 29.7°C	4.01 ~~N/A~~	4.12	pH std = 4.01 @ 24.2°C 4.01 @ 30.4°C
pH / Sp. Cond. Meter:	WTW pH/Cond 3400i					
~~Purge Rate (gpm)~~						
pH / Sp. Cond. Meter S/N:	# 08200255					

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 80°F

Sample Characteristics: Cloudy

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO Full Suite Collected YES ✓ or NO 9 bottle

Sample Device Left in Well YES ✓ or NO

Date: 7/11/2013 By: Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-114-AS
Sampler(s): Matt Steward

Top of Casing (ft, msl): 451.26

PURGE INFORMATION:

Method of Well Purge: Bladder Pump ~~Bailer~~ (Peristaltic)
Date/Time Initiated: 7/12/13 1041
Initial Water Level (feet): 17.60
Initial Water Level Previous Event (feet): 23.33
Ground Water Elevation (ft, msl): 433.66
Ground Water Elevation Previous Event (ft, msl): 427.93
Well Total Depth (feet): Top of Pump= 26.35
Well Total Depth Previous Event (feet): Top of Pump = 26.35

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): 1.27
Total Volume Purged (mL): 3750
Purged Dry?: Yes No X
Water Level after Purge (feet): 17.68
Date/Time Completed: 7/12/13 1054

PURGE DATA:

Average Purge Rate = 288 ml/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1045	250	~~1000~~ 1000	~~18.5~~ 16.4	6.51	1673	8.48	17.63	Clear, Slight Septic Odor
1048	317	1950	16.4	6.53	1666	11.09	17.75	Clear, Slight Septic Odor
1051	333	2950	16.1	6.53	1634	10.37	17.72	Clear, Slight Septic Odor
1054	267	3750	16.1	6.54	1629	8.61	17.68	Clear, Slight Septic odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-114-AS

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 17.68

Well Collection Sequence #: 33 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1056 7/12/13	VOC: <100 ml/min Other: 300 ml/min	16.1	6.54	1629	8.61	N/A	Clear, slight Septic Odo

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/12/13 0700

End of day: (Date/time) 7/12/13 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	9.89	NTU std = 10.0
997.0	N/A	NTU std = 1,000	N/A	1004	NTU std = 1,000
1423	N/A	µS std = 1,413	N/A	1428	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.02	N/A	pH std = 7.02 @20.6°C	N/A	7.02	pH std = 7.03 @16.4°C
4.00	N/A	pH std = 4.00 @21.0°C	N/A	4.04	pH std = 4.00 @16.4°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 80°F

Sample Characteristics: Clear, Slight Septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 4 of 9

Street sweeper went by during bottle filling; Kicked dust into the air

Date: 7/12/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-115-SS

Sampler(s): Matt Stewart

Top of Casing (ft, msl): 452.27

PURGE INFORMATION:

Method of Well Purge: Bladder Pump

Date/Time Initiated: 7/11/13 1622

Initial Water Level (feet): 14.80

Initial Water Level Previous Event (feet): 16.50

Ground Water Elevation (ft, msl): 437.47

Ground Water Elevation Previous Event (ft, msl): 435.77

Well Total Depth (feet): Top of Pump= 80.92

Well Total Depth Previous Event (feet): Top of Pump = 80.92

Dedicated Equipment: Yes X No

Casing Diameter (inches): 2

One Casing Volume (gal): N/A

One Casing Volume Previous Event (gal): N/A

Total Volume Purged (mL): 3000

Purged Dry?: Yes ____ No X

Water Level after Purge (feet): 17.87

Date/Time Completed: 7/11/13 1634

PURGE DATA:

Average Purge Rate = 250 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1625	333	1000	18.1	6.61	1788	7.58	16.68	Clear, ~~No O~~ Slight Septic Odor
1628	167	1500	18.4	6.62	1794	4.85	16.84	Clear, Slight Septic Odor
1631	250	2250	17.7	6.61	1854	3.23	17.21	Clear, Slight Septic Odor
1634	250	3000	17.9	6.67	1808	4.36	17.87	Clear, Slight Septic Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-115-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No ____

Water Level @ Sampling (ft): 17.87

Well Collection Sequence #: 29 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1636 7/11/14	VOC: 40mL/min Other: 300mL/min	17.9	6.67	1808	4.36	N/A	Clear, Slight Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/13 0710

End of day: (Date/time) 7/11/13 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340D

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.27	NTU std = 0.02
9.71	N/A	NTU std = 10.0	N/A	10.75	NTU std = 10.0
999.2	N/A	NTU std = 1,000	N/A	1075	NTU std = 1,000
1417	N/A	µS std = 1,413	N/A	1380	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.03	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.02	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear, Slight Septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO

Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO

9 of 9

Date: 7/11/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-116-SS

Sampler(s): Matt Stewart

Top of Casing (ft, msl) 484.85

PURGE INFORMATION:

Method of Well Purge: Bladder Pump

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/11/13 1449

Casing Diameter (inches): 2

Initial Water Level (feet): 25.57

One Casing Volume (gal): N/A

Initial Water Level Previous Event (feet): 26.58

One Casing Volume Previous Event (gal): N/A

Ground Water Elevation (ft, msl): 459.28

Total Volume Purged (mL): 3600

Ground Water Elevation Previous Event (ft, msl): 458.27

Purged Dry?: Yes No X

Well Total Depth (feet): Top of Pump= 149.98

Water Level after Purge (feet): 33.10

Well Total Depth Previous Event (feet): Top of Pump = 149.98

Date/Time Completed: 7/11/13 1503

PURGE DATA: 6 discharge, 6 refill, 75 psi Average Purge Rate = 257 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1454	300	1500	20.3	7.41	605	7.39	28.99	Clear, No Odor
1457	200	2100	20.3	7.42	603	6.54	30.18	Clear, No Odor
1500	250	2850	20.3	7.43	606	3.80	31.67	Clear, No Odor
1503	250	3600	20.0	7.44	604	4.18	33.10	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-116-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 33.10

Well Collection Sequence #: 26 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1505 7/11/13	VOC: <100mL/min Other: 300mL/min	20.0	7.44	604	4.18	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/13 0710

End of day: (Date/time) 7/11/13 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.27	NTU std = 0.02
9.71	N/A	NTU std = 10.0	N/A	10.75	NTU std = 10.0
999.2	N/A	NTU std = 1,000	N/A	1075	NTU std = 1,000
1417	N/A	µS std = 1,413	N/A	1380	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.03	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.02	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO ___ Full Suite Collected (YES) or NO ___

Sample Device Left in Well (YES) or NO ___ 4 of 9

Date: 7/11/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-200-SS
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 485.57

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/19/13 0994
Initial Water Level (feet): 26.56
Initial Water Level Previous Event (feet): 30.02
Ground Water Elevation (ft, msl): 459.01
Ground Water Elevation Previous Event (ft, msl): 455.55
Well Total Depth (feet): 99.51
Well Total Depth Previous Event (feet): 99.51

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 11.84
One Casing Volume Previous Event (gal): 11.32
Total Volume Purged (gal): 18.25
Purged Dry?: Yes No X
Water Level after Purge (feet): 47.54
Date/Time Completed: 7/19/13 1019

PURGE DATA: 99.51 - 26.56 = 72.95 ≈ ~~72.9~~ (MS) × 0.163 = 11.84 ÷ 2 = 5.95 Average Purge Rate = 0.73 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1005	0.57	6.25	16.7	6.27	1702	77.66	N/A	Gray, No Odor
1012	0.86	12.25	16.7	6.27	1683	111.5	N/A	Gray, No Odor
1019	0.86	18.25	16.7	6.29	1693	87.31	N/A	Gray No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-200-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 47.54

Well Collection Sequence #: 70 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1019 7/19/13	VOC: 100 mL/min Other: 0.73 gpm	16.7	6.29	1693	87.31	N/A	Gray, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/19/13 0715

End of day: (Date/time) 7/19/13 1345

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340D0

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

Purge Rate (gpm)

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
10.01	N/A	NTU std = 10.0	N/A	9.94	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1005	NTU std = 1,000
1405	N/A	µS std = 1,413	N/A	1397	µS std = 1,413
Cell Const: 0.479	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.479	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @27.6°C	N/A	7.04	pH std = 6.98 @25.0°C
4.01	N/A	pH std = 4.01 @28.2°C	N/A	4.09	pH std = 4.02 @24.8°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 80°F

Sample Characteristics: Gray, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 4 of 9

VOAs effervesced; sent unpreserved

Date: 7/19/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-201A-SS

Sampler(s): Matt Stewart

Top of Casing (ft, msl): 480.20

PURGE INFORMATION:

Method of Well Purge: Bladder Pump

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/10/13 1008

Casing Diameter (inches): 2

Initial Water Level (feet): 10.57

One Casing Volume (gal): N/A

Initial Water Level Previous Event (feet): 12.23

One Casing Volume Previous Event (gal): N/A

Ground Water Elevation (ft, msl): 469.63

Total Volume Purged (mL): 3000

Ground Water Elevation Previous Event (ft, msl): 467.97

Purged Dry?: Yes No X

Well Total Depth (feet): Top of Pump= 86.11

Water Level after Purge (feet): 16.71

Well Total Depth Previous Event (feet): Top of Pump = 86.11

Date/Time Completed: 7/10/13 1021

PURGE DATA: 6 discharge, 6 refill, 45 psi

Average Purge Rate = 231 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1012	250	1000	17.4	6.86	822	11.13	13.08	Clear, No Odor
1015	217	1650	17.2	6.91	820	7.03	14.30	Clear, No Odor
1018	167	2200	17.2	6.92	810	6.53	13.29	Clear, No Odor
1021	267	3000	17.0	6.91	804	4.50	16.71	Clear, No odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-201A-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No

Water Level @ Sampling (ft): 16.71

Well Collection Sequence #: 9 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1023 7/10/13	VOC: <100mL/min Other: 300mL/min	17.0	6.91	804	4.50	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/13 0715

End of day: (Date/time) 7/10/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340o

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.03	N/A	NTU std = 0.02	N/A	0.06	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	11.14	NTU std = 10.0
997.1	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1386	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @28.2°C	N/A	6.97	pH std = 6.99 @30.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.00	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Light Rain & Windy, 75°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/10/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-202-SS
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 481.02

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/11/13 1214
Initial Water Level (feet): 15.21
Initial Water Level Previous Event (feet): 14.36
Ground Water Elevation (ft, msl): 465.81
Ground Water Elevation Previous Event (ft, msl): 466.36
Well Total Depth (feet): Top of Pump= 85.29
Well Total Depth Previous Event (feet): Top of Pump = 85.29

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (mL): 4300
Purged Dry?: Yes No X
Water Level after Purge (feet): 15.22
Date/Time Completed: 7/11/13 1230

PURGE DATA:

Average Purge Rate = 269 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1218	250	1000	16.9	6.74	1250	21.59	15.22	Clear, No Odor
1221	250	1750	16.6	6.74	1305	13.62	15.22	Clear, No Odor
1224	250	2500	16.6	6.73	1363	17.98	15.21	Clear, No Odor
1227	283	3350	16.7	6.73	1367	12.85	15.22	Clear, No Odor
1230	317	4300	16.6	6.73	1369	14.93	15.22	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-202-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No ____

Water Level @ Sampling (ft): 15.22

Well Collection Sequence #: 22 of 76

Parameters: Annual: ___ Semi-Annual: ___ Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1232 7/11/13	VOC: 100mL/min Other: 300mL/min	16.6	6.73	1369	14.93	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/13 0710

End of day: (Date/time) 7/11/13 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340D0

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 04490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.27	NTU std = 0.02
9.71	N/A	NTU std = 10.0	N/A	10.75	NTU std = 10.0
999.2	N/A	NTU std = 1,000	N/A	1075	NTU std = 1,000
1417	N/A	µS std = 1,413	N/A	1380	µS std = 1,413
Cell Const: 0.480	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.480	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.03	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.02	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny & Windy, 80°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/11/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-203-SS
Sampler(s): Jon Wilkerson

Top of Casing (ft, msl): 486.44

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/17/2013 1323
Initial Water Level (feet): 24.97
Initial Water Level Previous Event (feet): 24.80
Ground Water Elevation (ft, msl): 461.47
Ground Water Elevation Previous Event (ft, msl): 461.64
Well Total Depth (feet): 111.38
Well Total Depth Previous Event (feet): 111.38

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 14.08 gal
One Casing Volume Previous Event (gal): 14.11
Total Volume Purged (gal): 21.25 gallons
Purged Dry?: Yes No ✓
Water Level after Purge (feet): 29.70
Date/Time Completed: 7/17/2013 1358

PURGE DATA: Average Purge Rate = 0.76 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1331	0.91	7.25	16.2	6.99	697	42.31	N/A	Clear
		~~14.5~~	Mode	adjustment to flow bladder ②			1331 - restart @ 1338	
~~1340~~ ②		~~21.25~~			~~706~~ ②		N/A ②	~~Clear~~ ②
1348	0.72	17.5	15.7	7.04	700	19.72	N/A	Clear
1358	0.67	21.25	15.7	7.07	708	17.45	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-203-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 29.70

Well Collection Sequence #: 57 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/17/2013 1358	VOC: N/A Other: N/A	15.7	7.07	708	17.45	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/17/2013 0630

End of day: (Date/time) 7/17/2013 1545

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #2012050B3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: #08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.02	NTU std = 0.02
10.01	N/A	NTU std = 10.0	N/A	9.98	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1005	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1391	µS std = 1,413
Cell Const: 0.481	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.481	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.2°C	N/A	7.02	pH std = 6.98 @34.2°C
4.01	N/A	pH std = 4.01 @26.2°C	N/A	4.08	pH std = 4.02 @34.2°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Mostly Cloudy, 90F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 10 Bottles

Sample Device Left in Well YES ✓ or NO

Replicate (Total Coli only) collected here

Date: 7/17/2013 By: Title: Senior General Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-204A-SS
Sampler(s): Jon Wilkinson

Top of Casing (ft, msl) 462.60

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/16/2013 1306
Initial Water Level (feet): 5.55
Initial Water Level Previous Event (feet): 5.88
Ground Water Elevation (ft, msl): 457.05
Ground Water Elevation Previous Event (ft, msl): 456.72
Well Total Depth (feet): 83.34
Well Total Depth Previous Event (feet): 83.34

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 12.68 gal
One Casing Volume Previous Event (gal): 12.63
Total Volume Purged (gal): 26 gallons
Purged Dry?: Yes No ✓
Water Level after Purge (feet): 12.57
Date/Time Completed: 7/16/2013 1356

PURGE DATA: Average Purge Rate = 0.52 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1318	0.54	6.5	16.6	6.62	3190	53.24	N/A	Clear
1330	0.54	13	16.4	6.70	2800	132.0	N/A	Clear
1342	0.54	19.5	16.5	6.73	2710	116.6	N/A	Clear
1356	0.46	26	16.4	6.74	2650	68.75	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-204A-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 12.51

Well Collection Sequence #: 49 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/16/2013 1356	VOC: N/A Other: N/A	16.4	6.74	2650	66.75	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/16/2013 0700

End of day: (Date/time) 7/16/2013 1620

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 201205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	~~0.02~~ 0.01 ①	NTU std = 0.02
9.92	N/A	NTU std = 10.0	N/A	~~9.98~~ 10.01 ②	NTU std = 10.0
998.3	N/A	NTU std = 1,000	N/A	1009 ③	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	~~1391~~ 1407 ④	µS std = 1,413
Cell Const: 0.483	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @ 26.8 °C	N/A	7.02	pH std = 6.98 @ 34.1 °C
4.01	N/A	pH std = 4.01 @ 27.0 °C	N/A	4.02	pH std = 4.02 @ 34.3 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 85°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

Date: 7/16/2013 By: Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-204-SS

Sampler(s): Jon Williamson

Top of Casing (ft, msl) 464.79

PURGE INFORMATION:

Method of Well Purge: Waterra

Date/Time Initiated: 7/16/2013 1150

Initial Water Level (feet): 7.97

Initial Water Level Previous Event (feet): 7.22

Ground Water Elevation (ft, msl): 456.82

Ground Water Elevation Previous Event (ft, msl): 457.57

Well Total Depth (feet): 88.01

Well Total Depth Previous Event (feet): 88.01

Dedicated Equipment: Yes X No

Casing Diameter (inches): 2

One Casing Volume (gal): 13.05 gal

One Casing Volume Previous Event (gal): 13.17

Total Volume Purged (gal): 11 gallons

Purged Dry?: Yes ✓ No

Water Level after Purge (feet): Dry @ Top of pump

Date/Time Completed: 7/16/2013 1255

PURGE DATA: Average Purge Rate = 0.17 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1228	0.18	6.75	18.6	7.23	766	19.91	N/A	Clear
1255	0.16	11	16.8	7.34	763	76.14	N/A	Clear
	Well purged dry @ 11 gallons - allow to recharge							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-204-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 53.88

Well Collection Sequence #: 54 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/17/2013 1140	VOC: N/A Other: N/A	18.1	7.15	751	17.57	N/A	Clear

INSTRUMENT CALIBRATION DATA:

	Purging Event			Sampling Event		
	7/16/2013	7/17/2013				
Start of day: (Date/Time)	0700	0630				
End of day: (Date/time)	7/16/2013 1620	7/17/2013 1545				
Turbidity Meter:	HF MicroTPW					
Turbidity Meter S/N:	# 20.205083					
pH / Sp. Cond. Meter:	WTW pH/Cond 3400i					
~~Purge Rate (gpm)~~						
pH / Sp. Cond. Meter S/N:	#08200255					

Start of day	End of day		Start of day	End of day	
0.01	0.01 N/A	NTU std = 0.02	0.02 N/A	0.02	NTU std = 0.02
9.92	10.01 N/A	NTU std = 10.0	10.01 N/A	9.98	NTU std = 10.0
998.3	1009 N/A	NTU std = 1,000	1000 N/A	1005	NTU std = 1,000
1408	1407 N/A	µS std = 1,413	1409 N/A	1391	µS std = 1,413
Cell Const: 0.483	Cell Const: 0.483 N/A	Cell Const Range: 0.45 - 0.50	Cell Const: 0.481 N/A	Cell Const: 0.481	Cell Const Range: 0.45 - 0.50
7.00	7.02 N/A	pH std = 6.98 @ 34.1 °C 7.00 @ 26.3°C	7.00 N/A	7.02	pH std = 6.98 @ 34.2 °C 7.00 @ 26.2°C
4.01	4.02 N/A	pH std = 4.02 @ 34.3 °C 4.01 @ 27.0°C	4.01 N/A	4.08	pH std = 4.02 @ 34.2 °C 4.01 @ 26.2°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Mostly Cloudy, 65°F, Intermittent Re~

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

Date: 7/17/2013 By: Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-205-AS

Sampler(s): Matt Stewart
Ward Herst

Top of Casing (ft, msl): 459.95

PURGE INFORMATION:

Method of Well Purge: Waterra

Date/Time Initiated: 7/17/13 1122

Initial Water Level (feet): 25.83

Initial Water Level Previous Event (feet): 30.58

Ground Water Elevation (ft, msl): 434.12

Ground Water Elevation Previous Event (ft, msl): 429.37

Well Total Depth (feet): 50.15

Well Total Depth Previous Event (feet): 50.15

Dedicated Equipment: Yes X No ____

Casing Diameter (inches): 2

One Casing Volume (gal): 3.96

One Casing Volume Previous Event (gal): 3.18

Total Volume Purged (gal): 3.25

Purged Dry?: X No ____

Water Level after Purge (feet): Dry @ bottom of well

Date/Time Completed: 7/17/13 1133

PURGE DATA: 50.15 - 25.83 = 24.32 x 0.163 = 3.96 ÷ 2 = 1.98

Average Purge Rate = 0.30 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1129	0.32	2.25	19.3	5.78	1954	821.4	N/A	Brown, No Odor
		Well Dry @ 3.25 gallons; Allow to Recharge						

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-205-AS

Sampling Method: Waterra

Dedicated: Yes X No ____

Water Level @ Sampling (ft): 25.86

Well Collection Sequence #: 61 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
0946 7/18/13	VOC: <100 ml/min; Other: 0.30 gal/min	20.0	6.19	2130	122	N/A	(no) N/A clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/17/13 0630; 7/18/13 0645

End of day: (Date/time) 7/17/13 1545; 7/18/13 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

Purge Rate (gpm)

pH / Sp. Cond. Meter S/N: 09490969

Purging Event 7/17/13 Start of day	Purging Event 7/17/13 End of day		Sampling Event 7/18/13 Start of day	Sampling Event 7/18/13 End of day	
0.04	0.16	NTU std = 0.02	0.02	0.01	NTU std = 0.02
10.02	10.28	NTU std = 10.0	9.94	9.94	NTU std = 10.0
998.5	978.8	NTU std = 1,000	999.7	1009	NTU std = 1,000
1409	1402	µS std = 1,413	1407	998 0.1388	µS std = 1,413
Cell Const: 0.477	Cell Const: 0.477	Cell Const Range: 0.45 - 0.50	Cell Const: 0.476	Cell Const: 0.476	Cell Const Range: 0.45 - 0.50
7.00	7.14	pH std = 7.00 | 26.2 / 6.98 @ 34.2°C	7.00	8.06	pH std = 7.00 | 27.2 / 6.98 @ 34.5°C
4.01	4.20	pH std = 4.01 | 26.2 / 4.02 @ 34.2°C	4.01	5.09	pH std = 4.01 | 27.8 / 4.02 @ 34.5°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 80°F

Sample Characteristics: clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) ___ or NO ___ Full Suite Collected (YES) ___ or NO ___

Sample Device Left in Well (YES) ___ or NO ___ 4 of 9

VOAs effervesced; sent unpreserved

Date: 7/18/13 By: Matt Stewart MaH Stewart Title: Project Geologist

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-205-SS
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 461.73

PURGE INFORMATION:

Method of Well Purge: Bladder Pump
Date/Time Initiated: 7/10/13 1524
Initial Water Level (feet): 25.76
Initial Water Level Previous Event (feet): 30.75
Ground Water Elevation (ft, msl): 435.97
Ground Water Elevation Previous Event (ft, msl): 430.98
Well Total Depth (feet): Top of Pump = 92.95
Well Total Depth Previous Event (feet): Top of Pump = 92.95

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): N/A
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (mL): 3750
Purged Dry?: Yes No X
Water Level after Purge (feet): 31.56
Date/Time Completed: 7/10/13 1536

PURGE DATA: 6 discharge, 6 refill, 42.5 psi
Average Purge Rate = 312 mL/min

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1527	333	1000	20.1	6.89	881	3.93	28.27	Clear, No Odor
1530	300	2500	21.4	6.87	903	3.90	29.44	Clear, No Odor
1533	200	3100	21.1	6.86	845	4.27	30.36	Clear, No Odor
1536	217	3750	21.0	6.86	895	3.63	31.56	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-205-SS

Sampling Method: Bladder Pump

Dedicated: Yes X No ____

Water Level @ Sampling (ft): 31.56

Well Collection Sequence #: 17 of 76

Parameters: Annual: ___ Semi-Annual: ___ Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1538 7/10/13	VOC: <100 mL/min Other: 300 mL/min	21.0	6.86	~~845~~ 895	3.63	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/13 0715

End of day: (Date/time) 7/10/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340o

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.03	N/A	NTU std = 0.02	N/A	0.06	NTU std = 0.02
10.02	N/A	NTU std = 10.0	N/A	11.14	NTU std = 10.0
997.1	N/A	NTU std = 1,000	N/A	1014	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1386	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @28.2°C	N/A	6.97	pH std = 6.99 @30.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.00	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 90°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO ___ Full Suite Collected (YES) or NO ___

Sample Device Left in Well YES or NO ___ 9 of 9

Date: 7/10/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-206-SS
Sampler(s): Matt Stewart
Jon Wilkinson

Top of Casing (ft, msl): 460.29

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/18/2013 1259
Initial Water Level (feet): 26.00
Initial Water Level Previous Event (feet): 29.68
Ground Water Elevation (ft, msl): 434.29
Ground Water Elevation Previous Event (ft, msl): 430.61
Well Total Depth (feet): 126.80
Well Total Depth Previous Event (feet): 126.80

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 16.43gal
One Casing Volume Previous Event (gal): 15.83
Total Volume Purged (gal): 24.75 gallons
Purged Dry?: Yes No ✓
Water Level after Purge (feet): 86.49
Date/Time Completed: 7/18/2013 1335

PURGE DATA: Average Purge Rate : 0.69 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1310	0.75	8.25	16.4	6.91	980	179.4	N/A	Lt. tan/silt
1321	0.75	16.5	16.5	6.83	964	77.83	N/A	Clear
1335	0.59	24.75	16.8	6.74	969	61.96	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION: Sample Point ID: PZ-206-SS

Sampling Method: Waterra Dedicated: Yes X No ____

Water Level @ Sampling (ft): 86.49 Well Collection Sequence #: 65 of 76

Parameters: Annual: ____ Semi-Annual: ____ Quarterly: ____ Monthly: ____ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/18/2013 1335	VOC: N/A Other: N/A	16.8	6.74	969	61.96	N/A	Clear.

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/18/2013 0645

End of day: (Date/time) 7/18/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 201205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day	Standard	Sampling Event Start of day	Sampling Event End of day	Standard
0.02	N/A	NTU std = 0.02	N/A	0.04	NTU std = 0.02
10.16	N/A	NTU std = 10.0	N/A	10.19	NTU std = 10.0
1001	N/A	NTU std = 1,000	N/A	1005	NTU std = 1,000
1414	N/A	μS std = 1,413	N/A	1402	μS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @ 27.2 °C	N/A	7.01	pH std = 6.98 @ 34.5 °C
4.01	N/A	pH std = 4.01 @ 27.1 °C	N/A	4.03	pH std = 4.02 @ 34.5 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 95°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ____ Full Suite Collected YES ✓ or NO ____ 10 bottles

Sample Device Left in Well YES ✓ or NO ____ Duplicate (total rads only) collected here

MDNR collects split total & diss rads, VOCs, tot + diss metals

Date: 7/18/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-207-AS

Sampler(s): Matt Stewart
Jon Williamson

Top of Casing (ft, msl): 462.49 - Apr 2013
462.17 - Jul 2013

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/18/2013 1421

Casing Diameter (inches): 2

Initial Water Level (feet): 29.13

One Casing Volume (gal): 1.68 gal

Initial Water Level Previous Event (feet): 35.08

One Casing Volume Previous Event (gal): 0.71

Ground Water Elevation (ft, msl): (JW) ~~433.36~~ 433.04

Total Volume Purged (gal): 5 gallons

Ground Water Elevation Previous Event (ft, msl): 427.41

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 39.45

Water Level after Purge (feet): 29.10

Well Total Depth Previous Event (feet): 39.45

Date/Time Completed: 7/18/2013 1432

PURGE DATA: Average Purge Rate = 0.27 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1425	0.25	1	18.0	6.51	3160	8.44	N/A	Clear
1428	0.33	2	17.6	6.50	3140	7.65	N/A	Clear
1432	0.25	3	17.5	6.49	3100	6.69	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-207-AS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 29.10

Well Collection Sequence #: 66 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/10/2013 1432	VOC: N/A Other: N/A	17.5	6.49	3100	6.69	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/2013 0645

End of day: (Date/time) 7/10/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #20120508J

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: #08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.09	NTU std = 0.02
10.16	N/A	NTU std = 10.0	N/A	10.19	NTU std = 10.0
1001	N/A	NTU std = 1,000	N/A	1005	NTU std = 1,000
1414	N/A	µS std = 1,413	N/A	1402	µS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @27.2°C	N/A	7.01	pH std = 6.98 @24.5°C
4.01	N/A	pH std = 4.01 @27.1°C	N/A	4.03	pH std = 4.02 @24.5°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Mostly Cloudy, 80's, T'stms in area

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___ MDNR collected split - total + diss Reads, VOCs, + total + dissolved metals

* VOAs effervesced & sent unpreserved - 7 day hold

Date: 7/10/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-208-SS

Sampler(s): Matt Stewart

Top of Casing (ft, msl): 474.19

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/15/13 1133

Casing Diameter (inches): 2

Initial Water Level (feet): 21.52

One Casing Volume (gal): 12.85

Initial Water Level Previous Event (feet): 22.38

One Casing Volume Previous Event (gal): 12.72

Ground Water Elevation (ft, msl): 452.67

Total Volume Purged (gal): 9.00

Ground Water Elevation Previous Event (ft, msl): 451.81

Purged Dry?: Yes X No

Well Total Depth (feet): 100.36

Water Level after Purge (feet): Dry @ bottom of well

Well Total Depth Previous Event (feet): 100.36

Date/Time Completed: 7/15/13 1151

PURGE DATA: 100.36 − 21.52 = 78.84 × 0.163 = 12.85 ÷ 2 = 6.43

Average Purge Rate = 0.50 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1141	0.81	6.50	16.0	7.20	908	15.72	N/A	Clear, No Odor
	Well dry @ 9.00 gallons; Allow to Recharge							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-208-SS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 48.52

Well Collection Sequence #: 45 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
0925 7/16/13	VOC: <100 ml/min Other: 0.50 gal/min	18.5	6.94	973	31.30	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

		Purging Event 7/15/13 Start of day	Purging Event End of day		Sampling Event 7/16/13 Start of day	Sampling Event End of day	
Start of day: (Date/Time)	7/15/13 0925	0.02	0.01	NTU std = 0.02	0.02	0.01	NTU std = 0.02
	7/16/13 0700						
End of day: (Date/time)	7/15/13 1615	10.05	10.08	NTU std = 10.0	9.96	9.84	NTU std = 10.0
	7/16/13 1620						
Turbidity Meter:	HF MicroTPW	994.5	1003	NTU std = 1,000	998.4	996.1	NTU std = 1,000
Turbidity Meter S/N:	20103400	1408	1396	µS std = 1,413	1409	1399	µS std = 1,413
		Cell Const:	Cell Const:	Cell Const Range: 0.45 - 0.50	Cell Const:	Cell Const:	Cell Const Range: 0.45 - 0.50
pH / Sp. Cond. Meter:	WTW pH/Cond 3400i	0.479	0.475		0.476	0.476	
~~Purge Rate (gpm)~~	(no)	7.00	7.04	pH std = 7.00 @ 27.4 / 6.98 @ 34.0°C	7.00	7.02	pH std = 7.00 @ 26.8 / 6.98 @ 34.1°C
pH / Sp. Cond. Meter S/N:	04490969	4.01	4.05	pH std = 4.01 @ 27.2 / 4.02 @ 33.6°C	4.01	4.05	pH std = 4.01 @ 27.0 / 4.02 @ 34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 80°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/16/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: PZ-302-AI

Sampler(s): Matt Stewart
Jon Wilkerson

Top of Casing (ft, msl) (2) ~~450.47~~ 451.02

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/16/2013 1500

Casing Diameter (inches): 2

Initial Water Level (feet): 18.31

One Casing Volume (gal): 4.23 gal

Initial Water Level Previous Event (feet): 23.03

One Casing Volume Previous Event (gal): 3.46

Ground Water Elevation (ft, msl): ~~431.96~~ 432.71 (2)

Total Volume Purged (gal): 6.75 gallons

Ground Water Elevation Previous Event (ft, msl): ~~427.44~~ 427.99 (2)

Purged Dry?: Yes No ✓

Well Total Depth (feet): 44.25

Water Level after Purge (feet): 18.32

Well Total Depth Previous Event (feet): 44.25

Date/Time Completed: 7/16/2013 1518

PURGE DATA: Matt's meters Average Purge Rate = 0.38 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1506	0.38	2.25	16.8	6.72	1442	35.47	N/A	Clear
1512	0.38	4.5	16.1	6.72	1428	23.22	N/A	Clear
1518	0.38	6.75	16.1	6.70	1422	18.32	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-302-AI

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 18.32

Well Collection Sequence #: 50 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/16/2013 1518	VOC: N/A Other: N/A	16.1	6.70	1422	18.32	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/16/2013 0700

End of day: (Date/time) 7/16/2013 1620

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20110B400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 09490969

Purging Event			Sampling Event		
Start of day	End of day		Start of day	End of day	
0.02	N/A	NTU std = 0.02	N/A	0.19	NTU std = 0.02
9.96	N/A	NTU std = 10.0	N/A	9.84	NTU std = 10.0
998.4	N/A	NTU std = 1,000	N/A	996.1	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1399	µS std = 1,413
Cell Const: 0.476	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.476	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @ 26.8 °C	N/A	7.02	pH std = 6.98 @ 24.1 °C
4.01	N/A	pH std = 4.01 @ 27.0 °C	N/A	4.05	pH std = 4.02 @ 24.3 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 90's

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___

Date: 7/16/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-302-AS
Sampler(s): Matt Stewart
Jon Wilkinson

Top of Casing (ft, msl): 451.33

PURGE INFORMATION:

Method of Well Purge: ~~Waterra~~ Poly Bailer
Date/Time Initiated: 7/16/2013 1444
Initial Water Level (feet): 17.90
Initial Water Level Previous Event (feet): 23.40
Ground Water Elevation (ft, msl): 433.43
Ground Water Elevation Previous Event (ft, msl): 427.93
Well Total Depth (feet): 24.50
Well Total Depth Previous Event (feet): 24.58

Dedicated Equipment: Yes XX No ✓
Casing Diameter (inches): 2
One Casing Volume (gal): 1.08 gal
One Casing Volume Previous Event (gal): 0.19
Total Volume Purged (gal): 1.25 gallons
Purged Dry?: Yes ✓ No
Water Level after Purge (feet): Dry @ Both of them
Date/Time Completed: 7/16/2013 1448

PURGE DATA: Jon's meters

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1445	NA	0.5	~~13.4~~ 18.4	6.50	2110	113.1	NA	Ct. Fe
		~~1.25~~						
		~~1.75~~						
	well purged dry @ 1.25 gallons - due to recharge							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sampling Method: ~~Waterra~~ Poly Bailer

Sample Point ID: PZ-302-AS

Dedicated: Yes Yes No ✓

Water Level @ Sampling (ft): 18.25

Well Collection Sequence #: 51 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/16/2013 1530	VOC: N/A Other: N/A	18.6	6.39	2130	80.67	N/A	Lt. tan

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/16/2013 0700

End of day: (Date/time) 7/16/2013 1620

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #20.205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.92	N/A	NTU std = 10.0	N/A	10.01	NTU std = 10.0
998.3	N/A	NTU std = 1,000	N/A	1009	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1407	µS std = 1,413
Cell Const: 0.483	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
4.01	N/A	pH std = 4.01 @27.0 °C	N/A	7.02	pH std = 6.98 @34.1 °C
7.00	N/A	pH std = 7.00 @26.8 °C	N/A	4.02	pH std = 4.02 @34.3 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 90's F

Sample Characteristics: Light tan

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ___ or NO ✓

Well has sufficient recharge to fill entire bottle set once ~1 hour.

Date: 7/16/2013 By: _____ Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-303-AS
Sampler(s): Ward Herst
Jon Wilkins

Top of Casing (ft, msl): 453.08

PURGE INFORMATION:

Method of Well Purge: ~~N/A~~ Poly Bailer
Date/Time Initiated: 7/15/2013 1215
Initial Water Level (feet): 20.51
Initial Water Level Previous Event (feet): 25.13
Ground Water Elevation (ft, msl): 432.57
Ground Water Elevation Previous Event (ft, msl): 427.95
Well Total Depth (feet): 28.29
Well Total Depth Previous Event (feet): 28.32

Dedicated Equipment: Yes X No ✓
Casing Diameter (inches): 2
One Casing Volume (gal): 1.27gl
One Casing Volume Previous Event (gal): N/A
Total Volume Purged (gal): 2.25 gallons
Purged Dry?: Yes ____ No ✓
Water Level after Purge (feet): 20.51
Date/Time Completed: 7/15/2013 1220

PURGE DATA:

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1217	N/A	0.75	18.2	6.53	2230	133.5	N/A	Orly sheen, petro. odor
1218	N/A	1.5	17.3	6.57	2280	55.57	N/A	" " " "
1220	N/A	2.25	17.5	6.52	2280	93.19	N/A	" " " "

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-303-AS

Sampling Method: Poly bailer ~~Waterra~~

Dedicated: Yes X No ✓

Water Level @ Sampling (ft): 20.51

Well Collection Sequence #: 41 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
~~7/15/2013~~ 1220	VOC: N/A Other: N/A	17.5	6.52	2200	93.18	N/A	Oily sheen, petroleum odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/15/2013 0925

End of day: (Date/time) 7/15/2013 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508 3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
9.80	N/A	NTU std = 10.0	N/A	9.82	NTU std = 10.0
999.6	N/A	NTU std = 1,000	N/A	1016	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1385	µS std = 1,413
Cell Const: 0.479	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.479	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @ 27.4 °C	N/A	7.00	pH std = 6.98 @ 34.0 °C
4.01	N/A	pH std = 4.01 @ 27.2 °C	N/A	4.05	pH std = 4.02 @ 33.9 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 85°F

Sample Characteristics: Oily sheen, petroleum odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ - 9 bottles

Sample Device Left in Well YES ___ or NO ✓

Date: 7/15/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-304-AI
Sampler(s): Matt Stewart
Ward Hersh

Top of Casing (ft, msl): 453.86

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/16/13 1147
Initial Water Level (feet): 21.23
Initial Water Level Previous Event (feet): 25.93
Ground Water Elevation (ft, msl): 432.63
Ground Water Elevation Previous Event (ft, msl): 427.93
Well Total Depth (feet): 52.55
Well Total Depth Previous Event (feet): 52.55

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 5.11
One Casing Volume Previous Event (gal): 2.17
Total Volume Purged (gal): 8.25
Purged Dry?: Yes No X
Water Level after Purge (feet): 21.23
Date/Time Completed: 7/16/13 1205

PURGE DATA: 52.55 - 21.23 = 31.32 x 0.163 = 5.11 ÷ 2 = 2.56

Average Purge Rate = 0.46 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1153	0.46	2.75	18.5	6.76	2260	49.07	N/A	Clear, No Odor
1159	0.46	5.50	18.2	6.79	2300	21.97	N/A	Clear, No Odor
1205	0.46	8.25	18.0	6.76	2320	15.58	N/A	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION: Sample Point ID: PZ-304-AI

Sampling Method: Waterra Dedicated: Yes X No ____

Water Level @ Sampling (ft): 21.23 Well Collection Sequence #: 46 of 76

Parameters: Annual: ____ Semi-Annual: Quarterly: ____ Monthly: ____ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1205 7/16/13	VOC: Slow at lo/min Other: — 0.46 gal/min	18.0	6.76	2320	15.58	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/16/13 0700

End of day: (Date/time) 7/16/13 1620

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 201103400

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~ NOS

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.19	NTU std = 0.02
9.96	N/A	NTU std = 10.0	N/A	9.84	NTU std = 10.0
998.4	N/A	NTU std = 1,000	N/A	996.1	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1399	µS std = 1,413
Cell Const: 0.476	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.476	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.8°C	N/A	7.02	pH std = 6.98 @34.1 oC
4.01	N/A	pH std = 4.01 @27.0°C	N/A	4.05	pH std = 4.02 @34.3 oC

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Partly Cloudy, 90°F

Sample Characteristics: Clear, No odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO ____ Full Suite Collected (YES) or NO ____

Sample Device Left in Well (YES) or NO ____ 4 of 9

Date: 7/16/13 By: Matt Stewart (signature) Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-304-AS
Sampler(s): Matt Stewart
Ward Hirst

Top of Casing (ft, msl): 453.61

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/16/13 1226
Initial Water Level (feet): 20.96
Initial Water Level Previous Event (feet): 25.69
Ground Water Elevation (ft, msl): 432.65
Ground Water Elevation Previous Event (ft, msl): 427.92
Well Total Depth (feet): 29.35
Well Total Depth Previous Event (feet): 29.35

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 1.37
One Casing Volume Previous Event (gal): 0.60
Total Volume Purged (gal): 2.25
Purged Dry?: Yes No X
Water Level after Purge (feet): 20.94
Date/Time Completed: 7/16/13 1234

PURGE DATA: 29.35-20.96 = 8.39 x 0.163 = 1.37 ÷ 2 = 0.69 Average Purge Rate = 0.28gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1228	0.38	0.75	18.6	6.63	3390	28.86	N/A	Clear, No Odor
1231	0.25	1.50	18.6	6.64	3400	25.38	N/A	Clear, No Odor
1234	0.25	2.25	18.4	6.64	3400	24.52	N/A	Clear, No Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-304-AS

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 20.94

Well Collection Sequence #: 47 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1234 7/16/13	VOC: <100mL/min Other: 0.28gal/min	18.4	6.64	3400	24.52	N/A	Clear, No Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/16/13 0700

End of day: (Date/time) 7/16/13 1620

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340O

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~ (0.28)

pH / Sp. Cond. Meter S/N: 09490969

Purging Event			Sampling Event		
Start of day	End of day		Start of day	End of day	
0.02	N/A	NTU std = 0.02	N/A	0.14	NTU std = 0.02
9.96	N/A	NTU std = 10.0	N/A	9.84	NTU std = 10.0
998.4	N/A	NTU std = 1,000	N/A	996.1	NTU std = 1,000
1409	N/A	µS std = 1,413	N/A	1349	µS std = 1,413
Cell Const: 0.476	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.476	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @26.8°C	N/A	7.02	pH std = 6.98 @34.1°C
4.01	N/A	pH std = 4.01 @27.0°C	N/A	4.05	pH std = 4.02 @34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 95°F

Sample Characteristics: Clear, No Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

VOAs effervesced; sent unpreserved

Date: 7/16/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: PZ-305-AI
Sampler(s): Matt Stewart
Jon Hoskins

Top of Casing (ft, msl) 459.83

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/22/2013 1023
Initial Water Level (feet): 27.00
Initial Water Level Previous Event (feet): 31.88
Ground Water Elevation (ft, msl): 432.83
Ground Water Elevation Previous Event (ft, msl): 427.95
Well Total Depth (feet): 40.18
Well Total Depth Previous Event (feet): 40.18

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 2.15 gal
One Casing Volume Previous Event (gal): 1.35
Total Volume Purged (gal): 3.75 gallons
Purged Dry?: Yes No ✓
Water Level after Purge (feet): 32.18
Date/Time Completed: 7/22/2013 1041

PURGE DATA: Average Purge Rate - 0.21 gallons/minute

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1029	0.21	1.25	17.6	6.48	1827	26.33	NA	Clear
1035	0.21	2.5	17.6	6.48	1839	21.44	NA	Clear
1041	0.21	3.75	17.5	6.49	1848	12.05	NA	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: PZ-305-AI

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 32.18

Well Collection Sequence #: 74 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/22/2013 1041	VOC: N/A Other: N/A	17.5	6.49	1948	12.05	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/22/2013 0845

End of day: (Date/time) 7/22/2013 1625

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508 3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

Purge Rate (gpm)

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.79	N/A	NTU std = 10.0	N/A	9.88	NTU std = 10.0
1004	N/A	NTU std = 1,000	N/A	1019	NTU std = 1,000
1427	N/A	µS std = 1,413	N/A	1387	µS std = 1,413
Cell Const: 0.486	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.486	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @ 24.8 °C	N/A	7.03	pH std = 6.98 @ 25.4 °C
4.01	N/A	pH std = 4.01 @ 24.8 °C	N/A	4.08	pH std = 4.02 @ 24.7 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 80's

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___

Date: 7/22/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: S-5
Sampler(s): Ward Herst
Jon Wilkerson

Top of Casing (ft, msl) 466.45

PURGE INFORMATION:

Method of Well Purge: Waterra
Dedicated Equipment: Yes X No
Date/Time Initiated: 7/9/2013 1032
Casing Diameter (inches): 2
Initial Water Level (feet): 32.59
One Casing Volume (gal): 1.92 gallons
Initial Water Level Previous Event (feet): 37.27
One Casing Volume Previous Event (gal): 1.15
Ground Water Elevation (ft, msl): 433.86
Total Volume Purged (gal): 3 gallons
Ground Water Elevation Previous Event (ft, msl): 429.18
Purged Dry?: Yes No ✓
Well Total Depth (feet): 44.34
Water Level after Purge (feet): 32.03
Well Total Depth Previous Event (feet): 44.34
Date/Time Completed: 7/9/2013 1050

PURGE DATA: Average Purge Rate = 0.17 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1038	0.17	1	19.4	6.88	4500	113.3	N/A	Dark gray
1044	0.17	2	19.1	6.87	4540	103.3	N/A	Clear
1050	0.17	3	19.3	6.90	4520	59.52	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: S-5

Sampling Method: Waterra

Dedicated: Yes X No ___

Water Level @ Sampling (ft): 32.03

Well Collection Sequence #: 2 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/9/2013 1050	VOC: N/A Other: N/A	19.3	6.90	4520	59.52	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/9/2013 0820

End of day: (Date/time) 7/9/2013 1530

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #201205083

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.01	N/A	NTU std = 0.02	N/A	0.00	NTU std = 0.02
9.85	N/A	NTU std = 10.0	N/A	10.13	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1011	NTU std = 1,000
1403	N/A	µS std = 1,413	N/A	1403	µS std = 1,413
Cell Const: 0.482	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.482	Cell Const Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @29.2°C	N/A	7.27	pH std = 6.98 @34.7°C
4.01	N/A	pH std = 4.01 @28.8°C	N/A	4.32	pH std = 4.02 @34.3°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: P. Cloudy, 85°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ___ or NO ___ Full Suite Collected YES ___ or NO ___

Sample Device Left in Well YES ✓ or NO ___ collect 9 bottles - total + dissolved rads; 3 VOAs, 4 plasti[c]

USEPA collects split - RADs + VOCs, metals * VOAs effervesced; sent unpreserved *

Date: 7/9/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: S-8
Sampler(s): Ward Herst
John Wilkinson

Top of Casing (ft, msl): 443.83

PURGE INFORMATION:

Method of Well Purge: Waterra
Dedicated Equipment: Yes X No
Date/Time Initiated: 7/12/2013 0907
Casing Diameter (inches): 2
Initial Water Level (feet): 10.65
One Casing Volume (gal): 3.35 gal
Initial Water Level Previous Event (feet): 16.66
One Casing Volume Previous Event (gal): 1.19
Ground Water Elevation (ft, msl): 433.18
Total Volume Purged (gal): 5.25 gallons
Ground Water Elevation Previous Event (ft, msl): 427.17
Purged Dry?: Yes No ✓
Well Total Depth (feet): 31.20
Water Level after Purge (feet): 10.67
Well Total Depth Previous Event (feet): 31.20
Date/Time Completed: 7/12/2013 0923

PURGE DATA: Average Purge Rate = 0.33 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
0913	0.29	1.75	16.8	6.99	678	53.08	N/A	Cloudy
0918	0.35	3.5	16.7	7.02	661	12.41	N/A	Clear
0923	0.35	5.25	16.9	6.98	660	5.90	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: S-8

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 10.67

Well Collection Sequence #: 30 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/12/2013 0923	VOC: N/A Other: N/A	16.9	6.98	660	5.90	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/12/2013 0700

End of day: (Date/time) 7/12/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 2012050883

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.75	N/A	NTU std = 10.0	N/A	9.89	NTU std = 10.0
993.6	N/A	NTU std = 1,000	N/A	1011	NTU std = 1,000
1422	N/A	µS std = 1,413	N/A	1399	µS std = 1,413
Cell Const: 0.485	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.495	Cell Const Range: 0.45 - 0.50
7.02	N/A	pH std = 7.02 @20.6°C	N/A	7.74	pH std = 7.03 @16.4°C
4.00	N/A	pH std = 4.00 @21.0°C	N/A	4.78	pH std = 4.00 @4.78°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 70F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ✓ or NO ___

Date: 7/12/2013 By: [signature] Title: Senior General Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: S-10
Sampler(s): Matt Stewart

Top of Casing (ft, msl): 480.06

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/15/13 1346
Initial Water Level (feet): 47.38
Initial Water Level Previous Event (feet): 52.66
Ground Water Elevation (ft, msl): 432.68
Ground Water Elevation Previous Event (ft, msl): 427.40
Well Total Depth (feet): 56.81
Well Total Depth Previous Event (feet): 56.81

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 1.54 ~~0.77~~ (MDS)
One Casing Volume Previous Event (gal): 0.68
Total Volume Purged (gal): 5.00
Purged Dry?: Yes No X
Water Level after Purge (feet): 48.54
Date/Time Completed: 7/15/13 1403

PURGE DATA: 56.81 - 47.38 = 9.43 x 0.163 = 1.54 ÷ 2 = 0.77
Average Purge Rate = 0.29 gal/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1349	0.33	1.00	19.0	6.55	3340	17.79	N/A	Clear, Slight Septic Odor
1352	0.33	2.00	18.9	6.58	3080	17.89	N/A	Clear, Slight Septic Odor
1356	0.25	3.00	19.2	6.62	2770	16.74	N/A	Clear, Slight Septic Odor
1400	0.25	4.00	18.6	6.64	2750	13.57	N/A	Clear, Slight Septic Odor
1403	0.33	5.00	18.8	6.64	2790	14.36	N/A	Clear, Slight Septic Odor

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: S-10

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 48.54

Well Collection Sequence #: 43 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
1405 7/15/13	VOC: ~~<100 ml/min~~ Other: 0.29 gal/min	18.8	6.64	2790	14.36	N/A	Clear, Slight Septic Odor

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/15/13 0925

End of day: (Date/time) 7/15/13 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: 20110340o

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~ (m.s)

pH / Sp. Cond. Meter S/N: 09490969

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
10.05	N/A	NTU std = 10.0	N/A	10.08	NTU std = 10.0
994.5	N/A	NTU std = 1,000	N/A	1003	NTU std = 1,000
1408	N/A	µS std = 1,413	N/A	1396	µS std = 1,413
Cell Const: 0.479	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.475	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = ~~27.4~~ 7.00 @ ~~7.00~~ 27.4 °C (m.s)	N/A	7.04	pH std = 6.98 @ 34.0 °C
4.01	N/A	pH std = ~~27.2~~ 4.01 @ ~~4.01~~ 27.2 °C	N/A	4.05	pH std = 4.02 @ 33.9 °C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Partly Cloudy, 90°F

Sample Characteristics: Clear, Slight Septic Odor

COMMENTS AND OBSERVATIONS:

Well Closed and Locked (YES) or NO Full Suite Collected (YES) or NO

Sample Device Left in Well (YES) or NO 9 of 9

Date: 7/15/13 By: Matt Stewart Matt Stewart Title: Project Geologist

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: S-53

Sampler(s): Ward Hurst, Matt Stewart
Jon Wilkinson

Top of Casing (ft, msl) 444.18

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: N/A

Casing Diameter (inches): 2

Initial Water Level (feet): N/A

One Casing Volume (gal): N/A

Initial Water Level Previous Event (feet): N/A

One Casing Volume Previous Event (gal): N/A

Ground Water Elevation (ft, msl): N/A

Total Volume Purged (gal): N/A

Ground Water Elevation Previous Event (ft, msl): N/A

Purged Dry?: Yes N/A No N/A

Well Total Depth (feet): N/A

Water Level after Purge (feet): N/A

Well Total Depth Previous Event (feet): 16.96

Date/Time Completed: N/A

PURGE DATA:

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
	Sample collected in multiple aliquots over several days due limited available volume and slow recharge.							

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: S-53

Sampling Method: Dolly Bailer ~~Waterra~~

Dedicated: Yes X (72) No ✓

Water Level @ Sampling (ft): N/A

Well Collection Sequence #: 59 of 76

Parameters: Annual: ___ Semi-Annual: Quarterly: ___ Monthly: ___ Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/18/2013 0735	VOC: N/A Other: N/A	16.6	6.80	1391	103.2	N/A	Clear to H. tan sand in sample

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/18/2013 0645

End of day: (Date/time) 7/18/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508B3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.09	NTU std = 0.02
10.16	N/A	NTU std = 10.0	N/A	10.19	NTU std = 10.0
1001	N/A	NTU std = 1,000	N/A	1005	NTU std = 1,000
1414	N/A	µS std = 1,413	N/A	1402	µS std = 1,413
Cell Const: 0.487	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.487	Cell Const Range: 0.45 - 0.50
7.00	N/A	pH std = 7.00 @27.2°C	N/A	7.01	pH std = 6.98 @34.5°C
4.01	N/A	pH std = 4.01 @27.1°C	N/A	4.03	pH std = 4.02 @34.5°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 80F

Sample Characteristics: Clear to H. tan; some sand in sample

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO ___ Full Suite Collected YES ✓ or NO ___ 9 bottles

Sample Device Left in Well YES ___ or NO ✓ Sample collected over multiple days in aliquots due to limited available volume + slow recharge.

Date: 7/18/2013 By: [signature] Title: Senior Chemical Engineer

Company: Herst & Associates, Inc.

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: S-61

Sampler(s): Nara Herst
Jon Wilkinson

Top of Casing (ft, msl) 449.52

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/12/2013 1152

Casing Diameter (inches): 2

Initial Water Level (feet): 16.61

One Casing Volume (gal): 1.61gal

Initial Water Level Previous Event (feet): 22.20

One Casing Volume Previous Event (gal): 0.70

Ground Water Elevation (ft, msl): 432.91

Total Volume Purged (gal): 3 gallons

Ground Water Elevation Previous Event (ft, msl): 427.32

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 26.48

Water Level after Purge (feet): 16.57

Well Total Depth Previous Event (feet): 26.48

Date/Time Completed: 7/12/2013 1202

PURGE DATA: Average Purge Rate = 0.30 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1156	0.25	1	15.5	7.62	1012	46.81	N.A	Clear
1159	0.33	2	15.7	7.53	1028	59.08	N.A	Cloudy
1202	0.33	3	15.8	7.45	1027	193.3	N.A	Cloudy

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: S-61

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 16.51

Well Collection Sequence #: 35 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/12/2013 1202	VOC: N/A Other: N/A	15.0	7.45	1027	193.3	N/A	Clear to Cloudy

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/12/2013 0700

End of day: (Date/time) 7/12/2013 1515

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: #20120508 3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.01	NTU std = 0.02
9.75	N/A	NTU std = 10.0	N/A	9.87	NTU std = 10.0
993.6	N/A	NTU std = 1,000	N/A	1011	NTU std = 1,000
1422	N/A	µS std = 1,413	N/A	1389	µS std = 1,413
Cell Const: 0.485	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.485	Cell Const Range: 0.45 - 0.50
7.02	N/A	pH std = 7.02 @20.6°C	N/A	7.74	pH std = 7.03 @16.4°C
4.00	N/A	pH std = 4.00 @21.0°C	N/A	4.78	pH std = 4.00 @16.4°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 75°F

Sample Characteristics: Clear to Cloudy

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

Date: 7/12/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill
Location: Bridgeton, Missouri
Sample Matrix: Groundwater

Sample Point ID: S-82
Sampler(s): Ward Herst
Jon Wilkinson

Top of Casing (ft, msl): 449.94

PURGE INFORMATION:

Method of Well Purge: Waterra
Date/Time Initiated: 7/11/2013 1417
Initial Water Level (feet): 17.09
Initial Water Level Previous Event (feet): 22.24
Ground Water Elevation (ft, msl): 432.85
Ground Water Elevation Previous Event (ft, msl): 427.70
Well Total Depth (feet): 25.32
Well Total Depth Previous Event (feet): 25.32

Dedicated Equipment: Yes X No
Casing Diameter (inches): 2
One Casing Volume (gal): 1.34 gal
One Casing Volume Previous Event (gal): 0.50
Total Volume Purged (gal): 2.25 gallons
Purged Dry?: Yes No ✓
Water Level after Purge (feet): 17.11
Date/Time Completed: 7/11/2013 1432

PURGE DATA: Average Purge Rate = 0.15 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1422	0.15	0.75	19.2	6.74	2220	14.71	N/A	Clear
1427	0.15	1.5	19.0	6.77	2390	10.98	N/A	Clear
1432	0.15	2.25	20.0	6.80	2260	12.22	N/A	Clear

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FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: S-82

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 17.11

Well Collection Sequence #: 25 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/11/2013 1432	VOC: N/A Other: N/A	20.0	6.80	2260	12.22	N/A	Clear

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/11/2013 0710

End of day: (Date/time) 7/11/2013 1730

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120503

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event Start of day	Purging Event End of day		Sampling Event Start of day	Sampling Event End of day	
0.02	N/A	NTU std = 0.02	N/A	0.16	NTU std = 0.02
9.94	N/A	NTU std = 10.0	N/A	10.03	NTU std = 10.0
1000	N/A	NTU std = 1,000	N/A	1023	NTU std = 1,000
1416	N/A	µS std = 1,413	N/A	1395	µS std = 1,413
Cell Const: 0.483	Cell Const: N/A	Cell Const Range: 0.45 - 0.50	Cell Const: N/A	Cell Const: 0.483	Cell Const Range: 0.45 - 0.50
7.01	N/A	pH std = 7.01 @22.6°C	N/A	7.13	pH std = 6.99 @28.9°C
4.01	N/A	pH std = 4.01 @24.2°C	N/A	4.12	pH std = 4.01 @30.9°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Sunny, 85°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

USEPA collected Split - Town Rads, VOCs, metals

Date: 7/11/2013 By:

Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**

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FIELD INFORMATION LOG Part 1

Facility: West Lake Landfill

Location: Bridgeton, Missouri

Sample Matrix: Groundwater

Sample Point ID: S-84

Sampler(s): Ward Herst
Jon Wilkinson

Top of Casing (ft, msl) 456.78

PURGE INFORMATION:

Method of Well Purge: Waterra

Dedicated Equipment: Yes X No

Date/Time Initiated: 7/10/2013 1131

Casing Diameter (inches): 2

Initial Water Level (feet): 23.38

One Casing Volume (gal): 1.62gal

Initial Water Level Previous Event (feet): 29.20

One Casing Volume Previous Event (gal): 0.67

Ground Water Elevation (ft, msl): 433.40

Total Volume Purged (gal): 3 gallons

Ground Water Elevation Previous Event (ft, msl): 427.58

Purged Dry?: Yes ____ No ✓

Well Total Depth (feet): 32.30

Water Level after Purge (feet): 23.37

Well Total Depth Previous Event (feet): 33.30

Date/Time Completed: 7/10/2013 1146

PURGE DATA: Average Purge Rate = 0.20 gallons/min

Time	Purge Rate (gpm)	Cumulative Volume (gal)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Water Level (ft)	Notes
1138	0.14	1	17.4	6.67	1419	140.5	N/A	Cloudy
1142	0.25	2	17.2	6.71	1409	143.8	N/A	Cloudy
1146	0.25	3	17.1	6.71	1411	171.3	N/A	Cloudy

HERST & ASSOCIATES, INC.®

Global Presence
Personal Attention

FIELD INFORMATION LOG Part 2

SAMPLING INFORMATION:

Sample Point ID: S-84

Sampling Method: Waterra

Dedicated: Yes X No

Water Level @ Sampling (ft): 23.37

Well Collection Sequence #: 12 of 76

Parameters: Annual: Semi-Annual: Quarterly: Monthly: Other: X

SAMPLE DATA:

Time & Date	Sample Rate (ml/min)	Temp (°C)	pH (std units)	Specific Conductance (uS = umhos/cm)	Turbidity (NTU)	Other	Notes
7/10/2013 1146	VOC: N/A Other: N/A	17.1	6.71	1411	171.3	N/A	Cloudy

INSTRUMENT CALIBRATION DATA:

Start of day: (Date/Time) 7/10/2013 0715

End of day: (Date/time) 7/10/2013 1615

Turbidity Meter: HF MicroTPW

Turbidity Meter S/N: # 20120508 3

pH / Sp. Cond. Meter: WTW pH/Cond 3400i

~~Purge Rate (gpm)~~

pH / Sp. Cond. Meter S/N: # 08200255

Purging Event			Sampling Event		
Start of day	End of day		Start of day	End of day	
0.02	N/A	NTU std = 0.02	N/A	0.04	NTU std = 0.02
9.91	N/A	NTU std = 10.0	N/A	9.78	NTU std = 10.0
995.1	N/A	NTU std = 1,000	N/A	1006	NTU std = 1,000
1407	N/A	µS std = 1,413	N/A	1374	µS std = 1,413
Cell Const:	Cell Const:	Cell Const.	Cell Const:	Cell Const:	Cell Const
0.477	N/A	Range: 0.45 - 0.50	N/A	0.477	Range: 0.45 - 0.50
6.99	N/A	pH std = 6.99 @28.2°C	N/A	7.25	pH std = 6.99 @30.5°C
4.01	N/A	pH std = 4.01 @29.1°C	N/A	4.26	pH std = 4.01 @29.7°C

Other Calibration: Not Applicable

GENERAL INFORMATION:

Weather Conditions @ Sampling: Overcast, 85°F

Sample Characteristics: Cloudy

COMMENTS AND OBSERVATIONS:

Well Closed and Locked YES ✓ or NO

Full Suite Collected YES ✓ or NO 9 bottles

Sample Device Left in Well YES ✓ or NO

Date: 7/10/2013 By: [signature] Title: Senior Chemical Engineer

Company: **Herst & Associates, Inc.**