

Appendix D

Field Data Sheets – Groundwater Sampling

Corporate Remediation Group - Field Book

Site: 2013 GW-01 Event: _____ Date: 6/18/2013 Time: 11:20

Personnel: DeVries & G. Gray Project Manager: _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Weather Conditions: ☒ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: 2' LNAPL: - Purge Method: per / low

Depth to Water: 21' DNAPL: — Purge Start: 1

Water Column: _____ Casing Dia: $\frac{3}{4}$ " _____ Purge Stop: 6 _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ **Purge Rate:** _____ **Water Level Stable @:** _____

Parameters	11:20	11:30				Sample	Analysis Time
pH	5.99	6.03					
Temperature (°C)	9.86	9.67					
Specific Conductance (umho)	414	420					
Dissolved Oxygen (mg/l)	9.40	8.9					
Redox (mV)	84.7	67.0					
Turbidity (ntu)	—	—					
Color	None	None					
Odor	None	None					

Sample Date: 6/18/2013 Sample Collection Time: 1130 Sample Method: low flow pump

[illegible]

Analyst Name: G. Gump

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2013 GN-02 Event: _____ Date: 6/19/2013 Time: ~ 855

Personnel: Dennis & Gregory Project Manager: _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Weather Conditions: ☒ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: ~ 3' LNAPL: / Purge Method: /

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ Casing Dia: _____ Purge Stop: _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters	9/01	9/10				Sample	Analysis Time
pH	7.32	6.84					
Temperature (°C)	9.96	10.48					
Specific Conductance (umho)	399	392					
Dissolved Oxygen (mg/l)	9.75	8.2					
Redox (mV)	168	188					
Turbidity (ntu)	-	-					
Color	clear	clear					
Odor	-	-					

Sample Date: 6/19/2013 Sample Collection Time: 9¹⁵ Sample Method: _____

[illegible]

Analyst Name: G. G. G. G.

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2013 GW-03 Event: _____ Date: 6/20/2013 Time: 10²⁰

Personnel: _____ Project Manager: _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: ~ 2' LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ Casing Dia: _____ Purge Stop: 6

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters	1025	1040				Sample	Analysis Time
pH	6.54	7.07					
Temperature (°C)	10.55	11.94					
Specific Conductance (umho)	296	294					
Dissolved Oxygen (mg/l)	4.89	4.72					
Redox (mV)	174 124	115 102					
Turbidity (ntu)	-	-					
Color	1x brown	1x brown					
Odor	-	-					

Sample Date: 6/20/2013 Sample Collection Time: 10⁴⁵ Sample Method: _____

Analysis	Volume (ml)	#	Preservative	Zero HS	Comments:
					all bottles collected
					fair recovery rate
					Bank near sample location has
					several seeps.

Analyst Name: C. Cragg Analyst Signature: _____ Date: _____ 30005

Corporate Remediation Group - Field Book

Site: 2013 GW-04 Event: _____ Date: 6/18/2013 Time: 1400

Personnel: DeVries & Gregory Project Manager: _____

Well ID: Permit No: VO Vapors: PID/FID BZ:

Weather Conditions: ☒ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: _____ **LNAPL:** _____ **Purge Method:** _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ Casing Dia: _____ Purge Stop: _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ **Purge Rate:** _____ **Water Level Stable @:** _____

Parameters	1420	1430	1440	160		Sample	Analysis Time
pH	7.21	7.19	7.06	7.08			
Temperature (°C)	17.65	17.59	18.15	16.7			
Specific Conductance (umho)	314	326	324	337			
Dissolved Oxygen (mg/l)	10.50	5.70	9.09	8.93			
Redox (mV)	96.7	110	123.1	156			
Turbidity (ntu)	—	—	—	—			
Color	Pink brown	→	→	lt gray			
Odor	—	—	—	none			

Sample Date: 6/6/2013 Sample Collection Time: 1430 Sample Method: _____

[illegible]

Analyst Name: G. Grogan Analyst Signature: _____ Date: _____ 30005

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Corporate Remediation Group - Field Book

Site: 2013 GW-05 Event: _____ Date: 6/20/2013 Time: 930

Personnel: _____ **Project Manager:** _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Other ☐ Wind: PIDIFID CA.: _____ Temp: _____ °F

Well Depth: _____ LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ Casing Dia: _____ Purge Stop: 6 _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters	940	955				Sample	Analysis Time
pH	6.86	6.66					
Temperature (°C)	12.35	11.98					
Specific Conductance (umho)	232	111					
Dissolved Oxygen (mg/l)	8.06	9.45					
Redox (mV)	186.9	198.5					
Turbidity (ntu)	67 brown	—					
Color	—	17 brown					
Odor	—	—					

Sample Date: _____ Sample Collection Time: 9:55 Sample Method: _____

[illegible]

Analyst Name: W. J. [Signature]

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2013 GW-06 Event: _____ Date: 6/19/2013 Time: 1430

Personnel: De Vries / Grogan Project Manager: _____

Well ID: _____ Permit No: _____ VO Vapors: PIDIFID BZ: _____

Weather Conditions: ☒ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: 2.5' LNAPL: / Purge Method: /

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ **Casing Dia:** _____ **Purge Stop:** _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters	1450	1505				Sample	Analysis Time
pH	5.18	5.9					
Temperature (°C)	14.3	15.0					
Specific Conductance (umho)	65	62					
Dissolved Oxygen (mg/l)	5.88	5.6					
Redox (mV)	101	105					
Turbidity (ntu)	—	—					
Color	lt brown	lt brown					
Odor	—	—					

Sample Date: 6/19/2013 Sample Collection Time: 15⁰⁰ Sample Method: _____

[illegible]

Analyst Name: George S. Rogers, Jr.

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2013 GW-07 Event: _____ Date: 6/20/2013 Time: 8⁰⁰

Personnel: S DeVries & G. Gray Project Manager: _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ **PID/FID CA.:** _____ **Temp:** _____ °F

Well Depth: _____ LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ **Casing Dia:** _____ **Purge Stop:** 6 _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x):_____ **Purge Rate:**_____ **Water Level Stable @:**_____

Parameters	810	830				Sample	Analysis Time
pH	4.53	6.15					
Temperature (°C)	12.04	12.8					
Specific Conductance (umho)	184	176					
Dissolved Oxygen (mg/l)	6.7	7.26					
Redox (mV)	273	191.4					
Turbidity (ntu)	-	-					
Color	lt brown	lt brown					
Odor	-	-					

Sample Date: 6/20/2013 Sample Collection Time: 845 Sample Method: _____

[illegible]

Analyst Name: G. Croy

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2013 GW-08 Event: _____ Date: 6/19/2013 Time: 1020
1645

Personnel: Devins & Gray Project Manager: _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Weather Conditions: ☒ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ PID/FID CA.: _____ Temp: _____ °F

Well Depth: _____ LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ Casing Dia: _____ Purge Stop: _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ **Purge Rate:** _____ **Water Level Stable @:** _____

Parameters	1035					Sample	Analysis Time
pH	6.56						
Temperature (°C)	10.16						
Specific Conductance (umho)	508						
Dissolved Oxygen (mg/l)	6.08						
Redox (mV)	173						
Turbidity (ntu)	-						
Color	clear						
Odor	-						

Sample Date: 6/19/2013 Sample Collection Time: 1040 Sample Method: _____

[illegible]

Analyst Name: L. L. Smith

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2013GW-09 Event: _____ Date: 6/19/2013 Time: 16⁰⁰

Personnel: Devries & Grogan Project Manager: _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Weather Conditions: ☒ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ PIDIFID CA.: _____ Temp: _____ °F

Well Depth: 3' LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ **Casing Dia:** _____ **Purge Stop:** _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters	16 ⁰⁵	16 ¹⁰				Sample	Analysis Time
pH	5.15	5.2					
Temperature (°C)	13.26	13.32					
Specific Conductance (umho)	119	122					
Dissolved Oxygen (mg/l)	3.45	3.02					
Redox (mV)	144	131					
Turbidity (ntu)	—	—					
Color	lt brown	lt brown					
Odor	—	—					

Sample Date: 6/19/2013 Sample Collection Time: 16¹⁵ Sample Method: _____

[illegible]

Analyst Name: G. Gregory

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2d13 GW-10 Event: _____ Date: 6/19/2013 Time: 11:15
 Personnel: Devon & Gregory Project Manager: _____
 Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ.: _____
 PID/FID CA.: _____
 Weather Conditions: ☒ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: 3' LNAPL: _____ Purge Method: _____
 Depth to Water: _____ DNAPL: _____ Purge Start: _____
 Water Column: _____ Casing Dia: _____ Purge Stop: _____
 Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____
 Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters	11/20	11/30			Sample	Analysis Time
pH	6.85	6.80				
Temperature (°C)	11.3	11.65				
Specific Conductance (umho)	124	112				
Dissolved Oxygen (mg/l)	3.45	5.13				
Redox (mV)	-143	-118				
Turbidity (ntu)	-	-				
Color	lt brown	lt yellow-brown				
Odor	-	-				

Sample Date: _____ Sample Collection Time: 11:30 Sample Method: _____

Analysis	Volume (ml)	#	Preservative	Zero HS	Comments:
					Collected @ 11:30
					all bottles
					Unusual bubbles in samples - seemed like soap bubbles.
					After sediment settles, water has yellow tint.

Analyst Name: C. Gregory Date: _____
 Analyst Signature: _____ 30005

Corporate Remediation Group - Field Book

Site: GW-01 Event: _____ Date: 6/18/2013 Time: 930

Personnel: Pearis & Gregory **Project Manager:** _____

Well ID: Permit No: VO Vapors: PIDIFID BZ:

Weather Conditions: ☒ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ PID/FID CA.: _____ Temp: _____ °F

Well Depth: ~2' LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ Casing Dia: _____ Purge Stop: _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ **Purge Rate:** _____ **Water Level Stable @:** _____

Parameters	935	940				Sample	Analysis Time
pH	6.62	5.03					
Temperature (°C)	13.08	12.97					
Specific Conductance (umho)	175	185					
Dissolved Oxygen (mg/l)	13.4	7.54					
Redox (mV)	15.3 mV	83.3 mV					
Turbidity (ntu)	-	-					
Color	brown	lt brown	(cleared up over time)				
Odor	none	none slt sulfide					

Sample Date: _____ Sample Collection Time: 9:15 (-100) Sample Method: _____

[illegible]

Analyst Name: C. C. [Signature]

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2013 GW-12 Event: _____ Date: 6/20/2013 Time: 1415

Personnel: _____ **Project Manager:** _____

Well ID: _____ Permit No: _____ VO Vapors: PIDIFID BZ: _____

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ **PIDIFID CA.:** _____ **Temp:** _____ °F

Well Depth: _____ LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ Casing Dia: _____ Purge Stop: 6 _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x):_____ **Purge Rate:**_____ **Water Level Stable @:**_____

Parameters	1/4/20					Sample	Analysis Time
pH	6.72						
Temperature (°C)	14.68						
Specific Conductance (umho)	217						
Dissolved Oxygen (mg/l)	8.93						
Redox (mV)	54						
Turbidity (ntu)	—						
Color	lt gray						
Odor	—						

Sample Date: 6/20/2013 Sample Collection Time: 1430 Sample Method: _____

[illegible]

Analyst Name: G. Brown

Analyst Signature: _____ **Date:** _____

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Corporate Remediation Group - Field Book

Site: 2013 GN-13 Event: _____ Date: 6/19/2013 Time: 745

Personnel: Devries & Gregory Project Manager: _____

Well ID: _____ Permit No: _____ VO Vapors: PIDIFID BZ: _____

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ **PIDIFID CA:** _____ **Temp:** _____ °F

Well Depth: _____ LNAPL: ~~_____~~ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ **Casing Dia:** _____ **Purge Stop:** _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters	750	800				Sample	Analysis Time
pH	6.19	4.74					
Temperature (°C)	11.09	11.05					
Specific Conductance (umho)	603	587					
Dissolved Oxygen (mg/l)	3.9	4.8					
Redox (mV)	210	284					
Turbidity (ntu)	-	-					
Color	clear	clear					
Odor	none	none					

Sample Date: 6/19/2013 Sample Collection Time: 8³⁰ Sample Method: _____

[illegible]

Analyst Name: C. Green

Analyst Signature: _____ **Date:** _____

30005

Corporate Remediation Group - Field Book

Site: 2013 GW-14 Event: _____ Date: 6/20/2013 Time: 1340

Personnel: _____ **Project Manager:** _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: _____ **LNAPL:** _____ **Purge Method:** _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ **Casing Dia:** _____ **Purge Stop:** 6 _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters	1345					Sample	Analysis Time
pH	6.73						
Temperature (°C)	13.08						
Specific Conductance (umho)	340						
Dissolved Oxygen (mg/l)	6.56						
Redox (mV)	143.7						
Turbidity (ntu)	—						
Color	14 brown						
Odor	—						

Sample Date: 6/25/2013 Sample Collection Time: 1355 Sample Method: _____

Analysis	Volume (ml)	#	Preservative	Zero HS	Comments:
					Poor recovery - no recharge to get Ammonia, ddehydes or end others @ 50% This location is <u>not</u> near any obvious seep - it is out in flood plain

Analyst Name: _____

Analyst Signature: _____ **Date:** _____

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19

Personnel: _____ **Project Manager:** _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ: _____

Wind: ☐ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: _____ LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: **Casing Dia:** **Purge Stop:**

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters						Sample	Analysis Time
pH							
Temperature (°C)							
Specific Conductance (umho)							
Dissolved Oxygen (mg/l)							
Redox (mV)							
Turbidity (ntu)							
Color							
Odor							

Sample Date: _____ **Sample Collection Time:** _____ **Sample Method:** _____

[illegible]

Analyst Name: Chen

Analyst Signature: _____ Date: _____

30005

Corporate Remediation Group - Field Book

Site: EB-06 2013-GW Event: _____ Date: 6/20/2013 Time: 1500

Personnel: _____ **Project Manager:** _____

Well ID: _____ Permit No: _____ VO Vapors: PID/FID BZ.: _____

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Other ☐ Wind: _____ Temp: _____ °F

Well Depth: _____ LNAPL: _____ Purge Method: _____

Depth to Water: _____ DNAPL: _____ Purge Start: _____

Water Column: _____ Casing Dia: _____ Purge Stop: _____

Well Vol: _____ Conv. Factor: _____ Parameter Collection Time: _____

Well Vol (3x): _____ Purge Rate: _____ Water Level Stable @: _____

Parameters						Sample	Analysis Time
pH							
Temperature (°C)							
Specific Conductance (umho)							
Dissolved Oxygen (mg/l)							
Redox (mV)							
Turbidity (ntu)							
Color							
Odor							

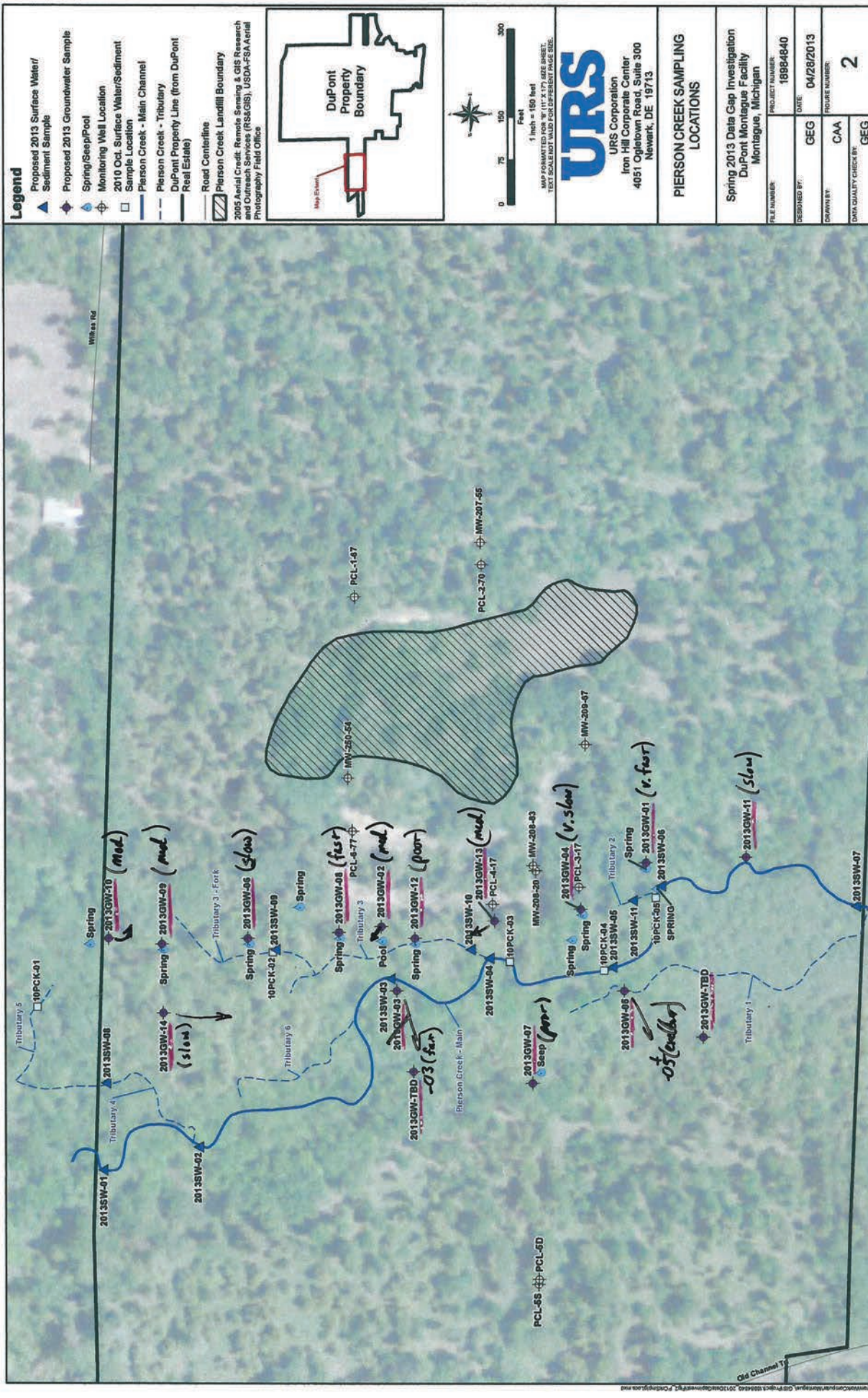
Sample Date: _____ **Sample Collection Time:** _____ **Sample Method:** _____

[illegible]

Analyst Name: C. J. [Signature]

Analyst Signature: _____ **Date:** _____

30005



2013 G.U.-11 6-18 945
 -01 6-18 1130
 -04 6-18 1430
 -13 6-19 830 PM
 -02 6-19 945
 -08 6-19 1040
 -10 6-19 1130
 -09 6-19 1615
 EB-061913-GW 6-19 1100
 -06 6-19 1500
 -07 6-20 845
 -05 6-20 945
 -14 6-20 1430
 -12 6-20 1430
 -15
 -16
 -03 6-20 1045
 Survey each seep location for ground surface